GARP 0317: Cookbook 01 October 2012

Data and Maps (Part 3)

Overview

1. Cool Sites!
2. CBs Example
3. Metadata
4. Your Turn: Get Data!
5. Homework Assignment #5

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


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

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

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

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 require 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 | Robert Hummel  
Alex Herchenreder |
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<tbody>
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<td>• Color, material, type, comments</td>
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<td>• Anything else that seems relevant!</td>
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<td>• Representative picture of each type</td>
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| 2) Lights on campus | LeeAnne MacGillivray  
Matthew Belmore |
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<td>• Anything else that seems relevant!</td>
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<td>• Representative picture of each type</td>
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| 3) Benches, signs, and bike racks | Nicole Giles  
Tarin Weiss |
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<tbody>
<tr>
<td>• Benches: Color, material, type, comment</td>
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<td>• Signs: Color, material, type, comment</td>
<td></td>
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<tr>
<td>• Bike racks: Color, material, type, # of bikes</td>
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<td>• Anything else that seems relevant!</td>
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<td>• Representative picture of each type</td>
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| 4) Fire hydrants, call boxes, mail boxes, shuttle stops, pay phones, and other | Nicholas Burns  
Michael Mitcheroney |
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<tbody>
<tr>
<td>• Fire hydrants: color, type, ID</td>
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<tr>
<td>• Call boxes: color, type, comment</td>
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<tr>
<td>• Mail boxes: collection times</td>
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<tr>
<td>• Shuttle stops: linked to online schedule</td>
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<td>• Pay phones</td>
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<tr>
<td>• Anything else that seems relevant!</td>
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<td>• Representative picture of each type</td>
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| 5) Campus Services | James Johnson  
Kyle Silk |
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<tr>
<td>• Eateries on-campus: name, type, menu, hours, etc.</td>
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<td>• Gyms: hours, cost, equipment, comment</td>
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<tr>
<td>• Playing fields around campus: type, etc.</td>
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<tr>
<td>• Trails in Stanley Park &amp; nice spots</td>
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<td>• Anything else that seems relevant!</td>
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<td>• Representative picture of each type</td>
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6) Building Footprints
- Name, floors, etc.
- Location of doors
- Anything else that seems relevant!
- Representative picture of each building

<table>
<thead>
<tr>
<th>Ashley Eaton</th>
<th>Ricci Allessio</th>
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</table>

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!

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<thead>
<tr>
<th>Malcolm Richardson</th>
<th>Julia Amero</th>
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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!

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<tr>
<th>Sarah Pierce</th>
<th>Casey Douglas</th>
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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!