Cartography
Spatial Computing – University of Minnesota
Learning Objectives

1. Understand the drastically changed (and changing) professional context of modern cartography.

2. Be able to distinguish between and understand the purpose of the two major types of maps: reference and thematic.

3. Know the limitations of popular online and mobile reference maps. (Technical track: Know how to get around them)

4. Be able to distinguish between types of thematic maps and choose the correct type for a given geocommunication need.

5. Have an understanding of some of the computing-oriented innovation going on in cartography (i.e. spatialization)
The two types of most commonly-encountered maps for many people:

**Online maps**
(a.k.a. map websites)

**Mobile Maps**
(a.k.a. map smartphone apps)
Well-known “online maps” / map websites:

- Google Maps
- MapQuest
- Bing Maps
- OpenStreetMap
Well-known mobile map apps:

- Google Maps app
- Apple Maps app
- Nokia HERE Maps
- Waze
### The 10 Most Popular Apps in the U.S.

Average monthly users (18+) of the most popular smartphone apps in the United States in 2013

<table>
<thead>
<tr>
<th>App</th>
<th>Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>86.1m</td>
</tr>
<tr>
<td>Google Play</td>
<td>60.9m</td>
</tr>
<tr>
<td>Google Search</td>
<td>59.7m</td>
</tr>
<tr>
<td>YouTube</td>
<td>55.7m</td>
</tr>
<tr>
<td>Pandora Radio</td>
<td>51.6m</td>
</tr>
<tr>
<td>Gmail</td>
<td>51.3m</td>
</tr>
<tr>
<td>Google Maps</td>
<td>50.5m</td>
</tr>
<tr>
<td>Apple App Suite*</td>
<td>49.3m</td>
</tr>
<tr>
<td>Yahoo Stocks</td>
<td>34.1m</td>
</tr>
<tr>
<td>Apple Maps</td>
<td>29.5m</td>
</tr>
</tbody>
</table>

*Includes iTunes, App Store and Game Center

Source: comScore

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Foreign fighters flow to Syria

An estimated 15,000 militiamen from at least 80 nations are believed to have entered Syria to help topple the regime of President Bashar al-Assad according to the CIA and studies by ISCR and The Soufan Group. Many of these fighters are believed to have joined units that are now part of the Islamic State. Western officials are concerned about what these individuals may do upon returning to their native countries.

Countries from which citizens or residents have reportedly gone to fight.

http://www.washingtonpost.com/world/foreign-fighters-flow-to-syria/2014/10/11/3d2549fa-5195-11e4-8c24-487e92bc997b_graphic.html
MAP: The best places to be a Twin Cities transit commuter

Posted by: Eric Roper | Updated: October 7, 2014 - 5:43 PM

7 comments | print


(Click here to see the full map, with a legend.)

Slides for Spatial Computing MOOC
(By Brent Hecht)
Election maps:

http://election2012.npr.org/results-map.html
Publicly-displayed local maps:
Road Atlases

World Atlases
World's oldest map: Spanish cave has landscape from 14,000 years ago

Archaeologists have discovered what they believe is man's earliest map, dating from almost 14,000 years ago.

By Fiona Govan in Madrid
7:30AM BST 06 Aug 2009

A stone tablet found in a cave in Abauntz in the Navarra region of northern Spain is believed to contain the earliest known representation of the landscape.
Reference Maps
Reference Maps

Thematic Maps
Reference Maps

Intended to (geo)communicate the location of specific entities (and how to get to them)

Used primarily for navigation and orientation
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Reference Maps
Thematic Maps

Slides for Spatial Computing MOOC
(By Brent Hecht)
Thematic maps are “used to emphasize the spatial distribution of one or more geographic attributes”.

(Slocum et al. 2009)
Thematic maps are “used to emphasize the spatial distribution of one or more geographic attributes”.

Thematic Maps
Thematic maps are “used to emphasize the spatial distribution of one or more geographic attributes”.

The size of an army
Thematic maps are “used to emphasize the **spatial distribution** of one or more geographic attributes”.

The size of an army

Where an army comes from
Thematic maps are “used to emphasize the **spatial distribution** of one or more geographic attributes”.

The size of an army

Where an army comes from

Which football game is on TV

**Thematic Maps**
Thematic maps are “used to emphasize the **spatial distribution** of one or more geographic attributes”.

- The size of an army
- Where an army comes from
- Which football game is on TV
- Election results

**Thematic Maps**
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Thematic maps are “used to emphasize the spatial distribution of one or more geographic attributes.”
Web Cartography
Map Design for Interactive and Mobile Devices

(Muehlenhaus 2013)
“The last time cartography went through such a sea change was with the advent of thematic mapping.”

(Muehlenhaus 2013)
Web Cartography
Map Design for Interactive and Mobile Devices

(Muehlenhaus 2013)
Potential point of confusion: thematic or reference?
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