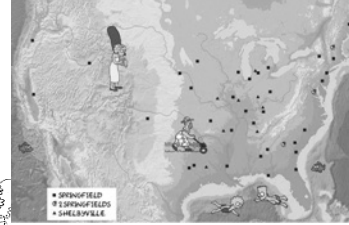
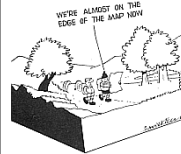


Introduction to Mapping Class #2 Notes

- Introduction to mapping
- Computer Assisted Cartography
- Automated Mapping
- Computer lab Orientation

Why Use a Map? What is a Map?



Early Maps



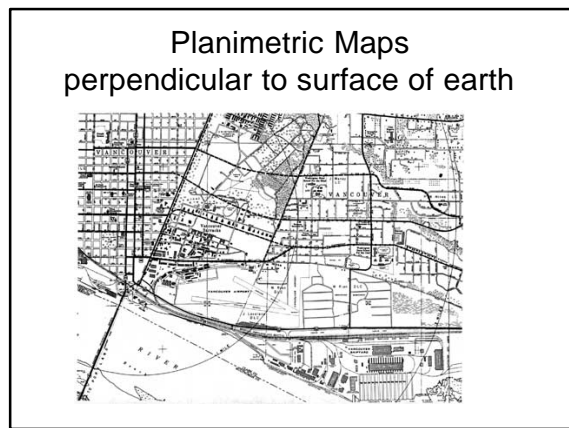
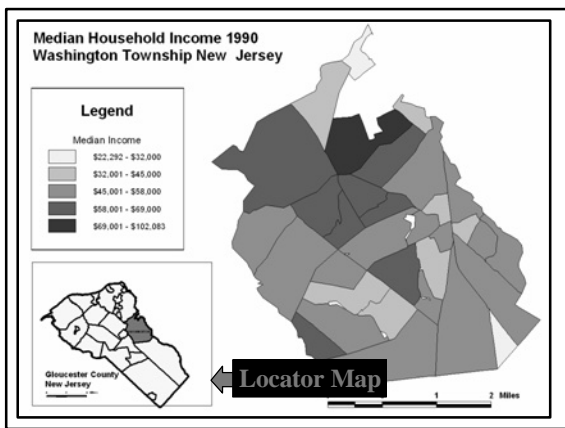
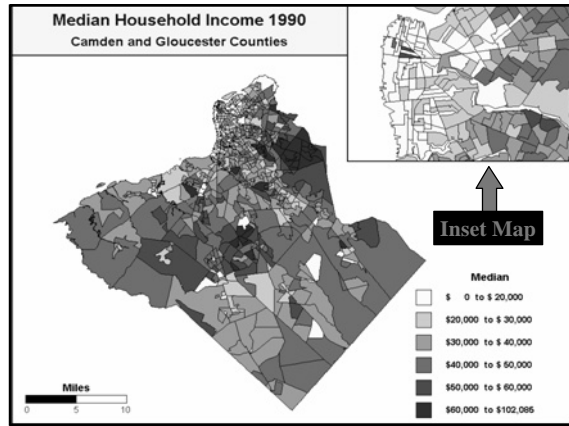
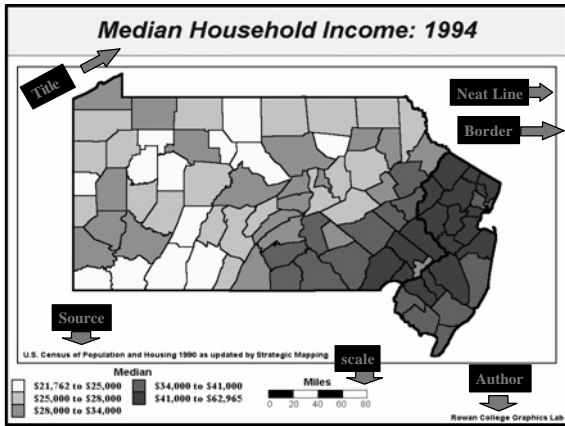
Mental Maps of Rowan Campus

- Discuss mental mapping exercise

- **Cartography** – the art, science and technology of making maps along with their study as scientific documents and works of art.
- **Map** – any concrete or real abstract representation of the features that occur on or near the surface of the earth
- **Real Map**- (cartographic map) , tangible, permanent form, directly viewable
- **Virtual Map** – non-permanent images (projector, screen, TV) conceptual / mental images

Real Maps Common Map Elements

- | | |
|---|---|
| <ul style="list-style-type: none"> • Typographical Information <ul style="list-style-type: none"> – Title – Legend – Source – Projection – Date – Etc. | <ul style="list-style-type: none"> • Graphic elements <ul style="list-style-type: none"> – Neatline – Scale – Orientation – Insets – Etc. |
|---|---|



Base maps

- underlying geography for creating more detailed map
- Outline maps are a type of base map

NJ 07 - 68.16

Cadastral maps

- Used for property and tax management

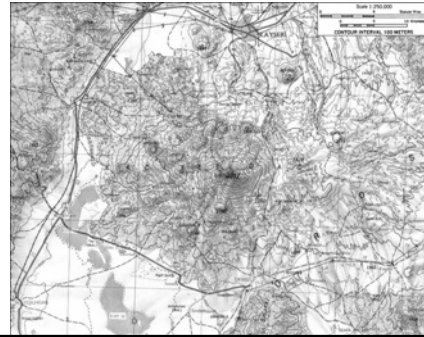
Line-route maps

- Shows utility or infrastructure connections



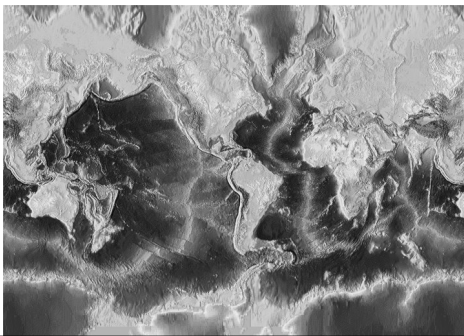
Topographic Maps

shape and elevation of terrain

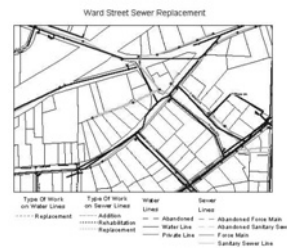


Bathymetric map

level of water body depth



Engineering maps



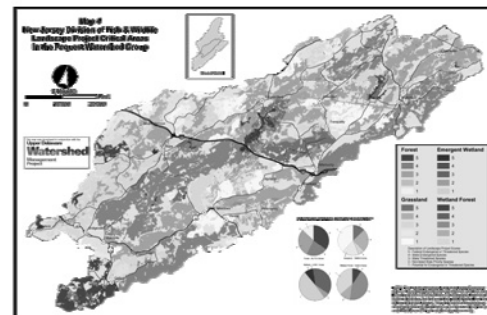
Flood-prone maps

- blue:** 1% flood
- pink:** 1 ft flood
- tan:** no flood



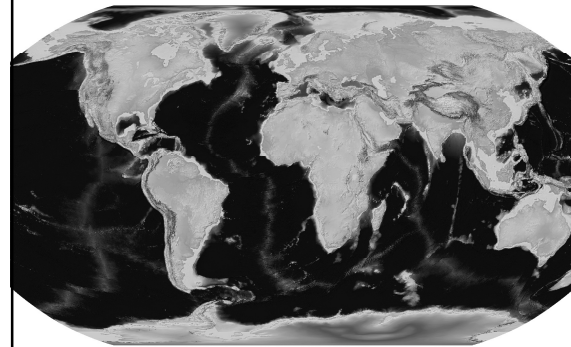
Landscape map

ecological land types



Thematic Map – shows information about one specified topic

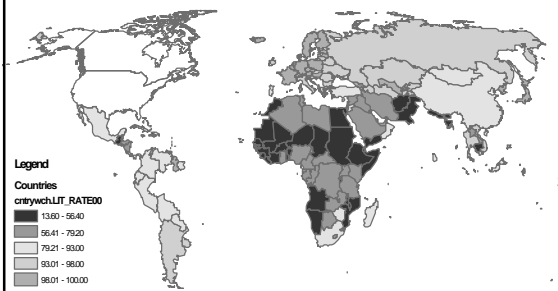
Shaded Relief



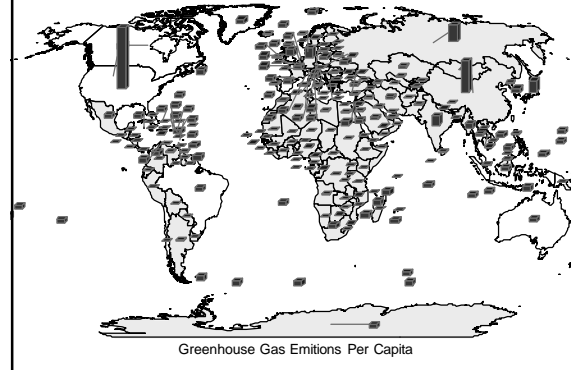
Colors represent elevation above sea level

low	□	high	■
medium	□	very high	□

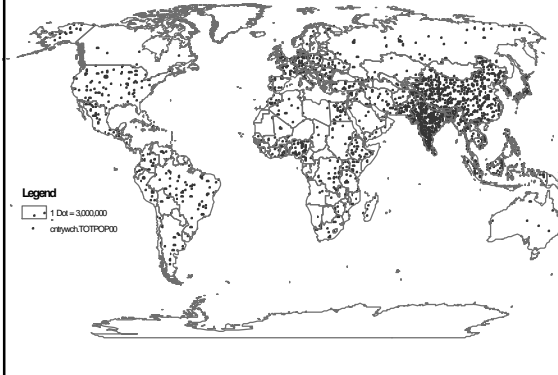
Choropleth



Proportionate Symbol

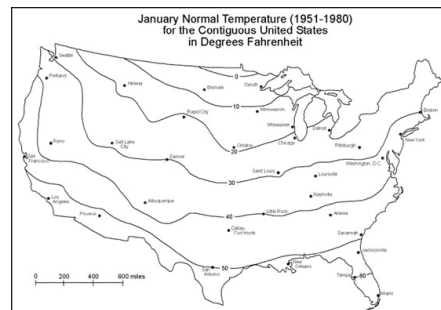


Dot Density



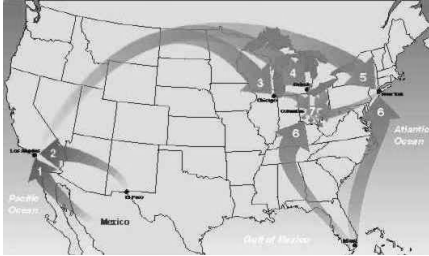
Isoline

lines join equal values



Flow maps

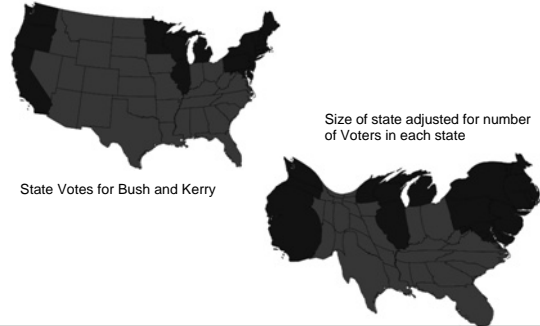
show movement



- Secondary cocaine and crack drug flow

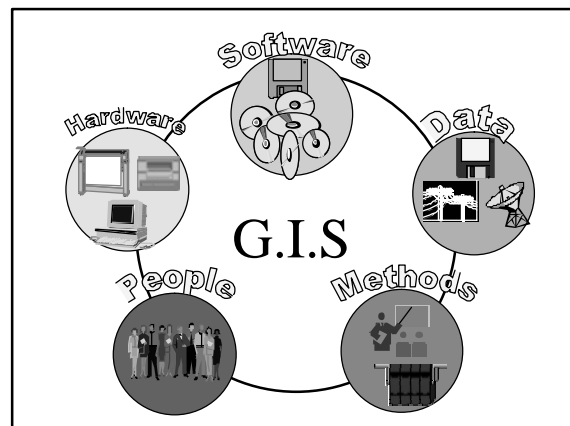
Cartograms –

change a spatial variable to represent the theme of interest

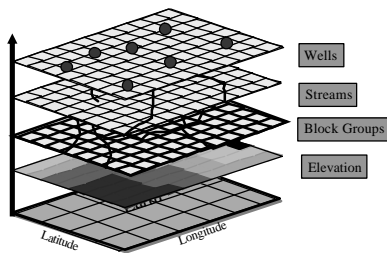


What is G.I.S.?

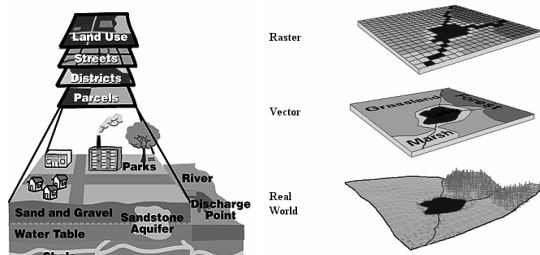
- Organized collection of computer:
 - Hardware
 - Software
 - Geographic data
 - Attribute data
- Coupled with human expertise
- Enables capture, storage, manipulation, and analysis of spatial and attribute data.
- To create information useful in making locational decisions.



Think of layers of maps stored in the computer



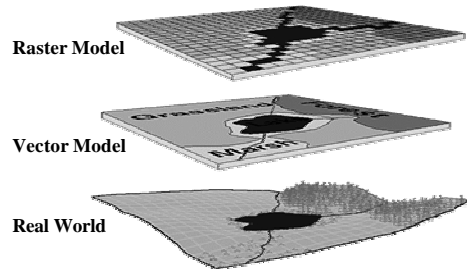
GIS Layers



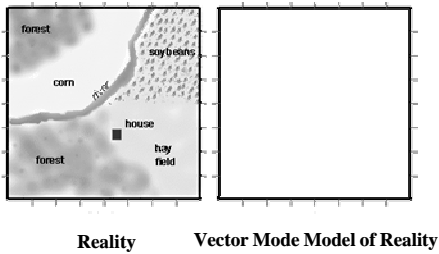
Families of G.I.S

- Vector mode or coordinate based
- Raster mode or grid cell

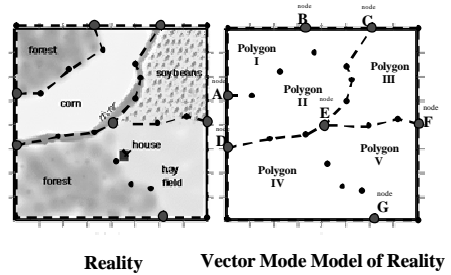
Modeling Geospatial Reality



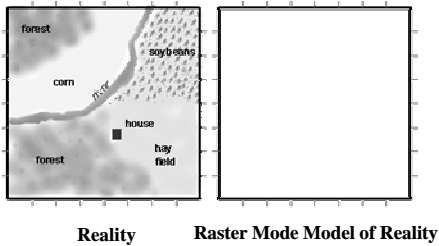
Coding Vector GIS



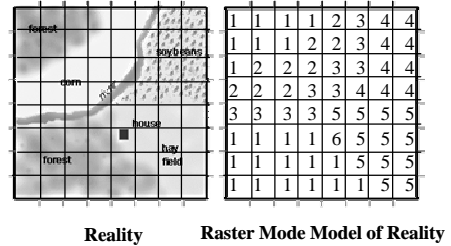
Coding Vector GIS



Coding Raster GIS Data



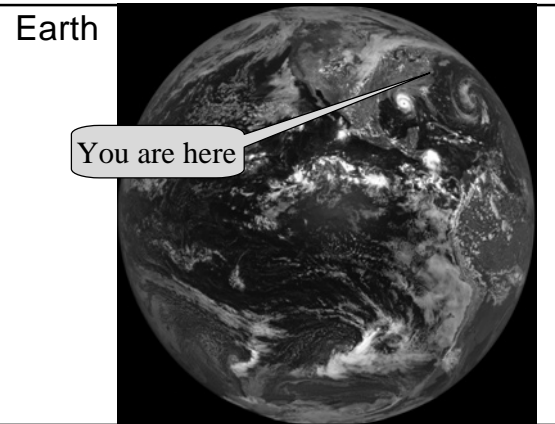
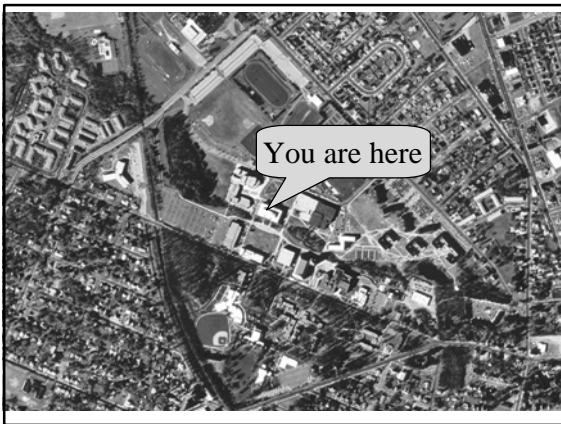
Coding Raster GIS Data



Remotely Sensed Imagery

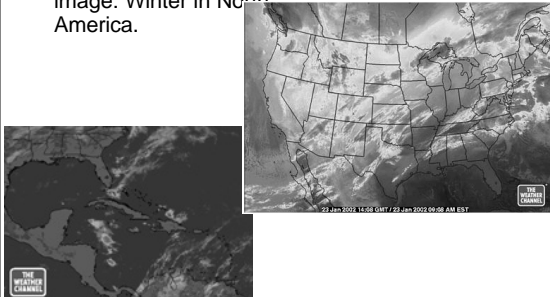
What is remote sensing?

- Collection of data about some property of an object...
- Using a recording device NOT in physical contact with the object.



Satellite Images

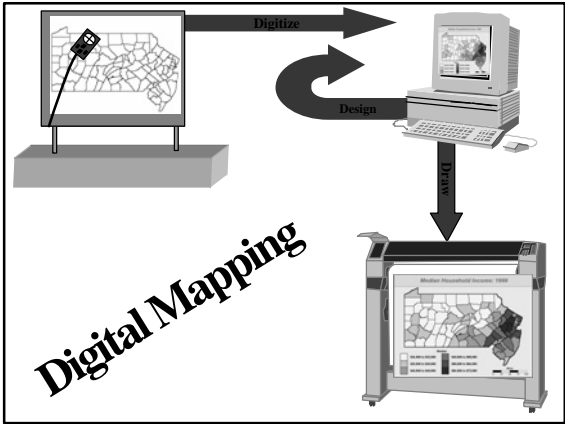
- Weather satellite image: Winter in North America.



Chapter 19 Computer Assisted Cartography

- Advantages of Computer-Assisted Techniques to the Map Producer
 - Output - ease of creating and rapidly change output
- Effects of Computer-Assisted Techniques on the Map User
 - dynamic maps
 - Hyperlinked
 - etc.

- ### Computer Assisted Cartography
- Tools: hardware, software, cartographic expertise.
 - Goals: create, design, and display maps.
 - Process:
 - Data capture
 - Map design
 - Map production



- ### Data Capture
- Cartographic Data
 - Digitize
 - Scan
 - Purchase
 - Convert
 - Attribute Data
 - Type
 - Scan
 - Purchase
 - Convert
- Geocode } Error correct, georeference

- ### Common Digital Cartographic Formats
- USGS –
 - Digital Chart of the World (DCW)
 - Digital Line Graphs (DLG)
 - Digital Elevation Models (DEMs)
 - Digital Orthophotos
 - Digital Raster Graphics (DRG)
 - Digital Land-Use and Land-Cover data
 - TIGER US Census Bureau
 - Census tracts, blocks, block groups, metro areas etc.
 - Roads with addresses coded

- ### Accuracy Issues with digital mapping
- Scale – digital maps can easily translate scale, must use appropriate scale for application

Metadata – data about data

Metadata - Mozilla Firefox

Click on a layer to browse its metadata. Use the tabs to browse metadata categories.

Legend
hydro
highways
protectedareas
Gazetteer Results
Annotations
WORLD

Metadata on Hydrography			
General Information	Distributor	Publisher	E
General information on Hydrography			
Metadata name	Hydrography		
Data description - abstract	MassGIS has edited and modified Hydrography Digital Line Graph (D USGS 1:100,000 Hydrography DL hydrographic features from the US Quadrangles to produce a hybrid 3 Hydrography Datalayer. The 1:100 enhanced by digitizing those strea quadrangles that were not part of it has also scanned USGS mylar sep 1:100,000 enhanced data with 1:2		
Data description - purpose			
Keywords	USGS Hydrography		
Use constraints			
Classification	inlandWaters,		
Originator			
Production date (YYYY-MM-DD)			
Organisation name			
Country			

Chapter 20 Digital Map Applications

- Cartography and mapping has been forever change by the internet, computers and GPS systems.



Electronic Atlases

- Like printed atlas
 - large amount of general information
- Different than printed atlas
 - Automated indexing
 - More easily updated
 - Can be personalized to the user
 - Can add other media, photos, video clips, diagrams

Web-based mapping Atlas of Canada



New Types of Automated Mapping

- Electronic Road Maps
- Street and Highway Maps
- Trip-Planning Aids (Map Quest)
- ON STAR GPS-based navigation systems