Cartographic Communication

CSISS Workshop “Map Making and Visualization”
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MONDAY Lecture
Why do we map the world?

Prehistoric and Present Needs

Role of the Mental Image
  perception, experience, imagination

Processing visual information
  limits of human visual processing system
  visual anomalies, psychophysics
Count the Black Dots
Look at the chart and say the COLOUR not the word

YELLOW  BLUE  ORANGE
BLACK   RED   GREEN
PURPLE  YELLOW  RED
ORANGE  GREEN  BLACK
BLUE    RED    PURPLE
GREEN   BLUE   ORANGE

Left - Right Conflict
Your right brain tries to say the colour but your left brain insists on reading the word.
Cartographic Process

real / imagined / learned / experienced

Spatial Cognition

Pattern recognition

Decoding

Encoding

static / dynamic
digital / analog / verbal
Abstracting Reality

distance decay graph

map with small multiples

Landsat image

From MacEachren, 1995, *How Maps Work*  
London: Guilford.
Elements of Map Design

Map Design

- Abstraction
  - information processing
  - information encoding

- Constraints
  - conceptual
  - mechanical

- Generalization (Modeling)
- Symbolization (Semiotics)
- Production (Presentation)

KNOWLEDGE

MEANING

AESTHETICS
Map Types and Functions

- **THEMATIC**: eg., statistical maps and graphs, diagrams / renderings, distributions / derived data
  - Daily weather maps
- **TOPOGRAPHIC MAPS**: satellite images
- **REFERENCE**: eg., outline maps, general atlas (NGS), globe
- **PRAGMATIC**: eg., ETAK electronic navigation, hydro / aeronautical charts, (verbal) directions
- **FUNCTIONAL COMPLEXITY INCREASES**

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