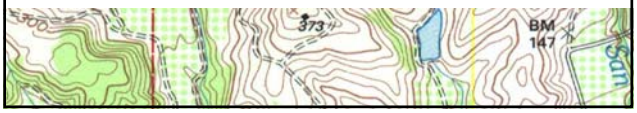
Geography 12: Maps and Spatial Reasoning

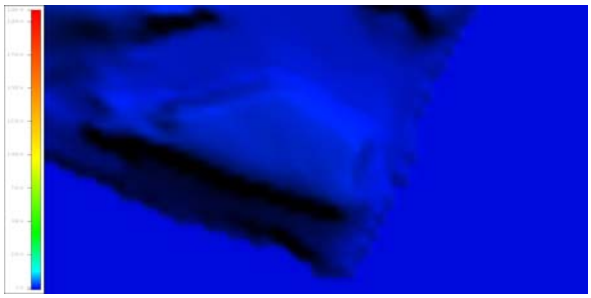
Lecture 7: Map generalization

Professor Keith Clarke

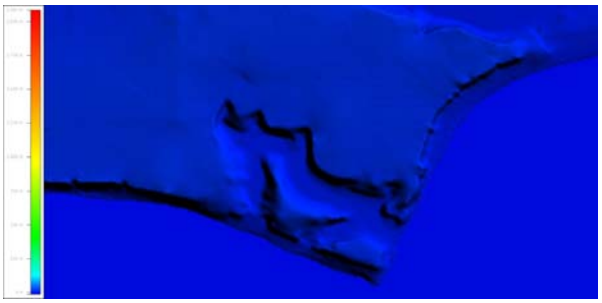


Let's start here

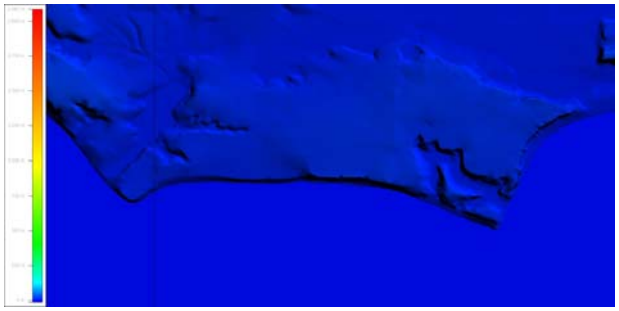
1:1550



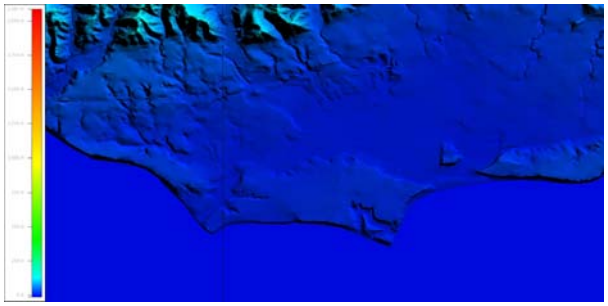
1:6227



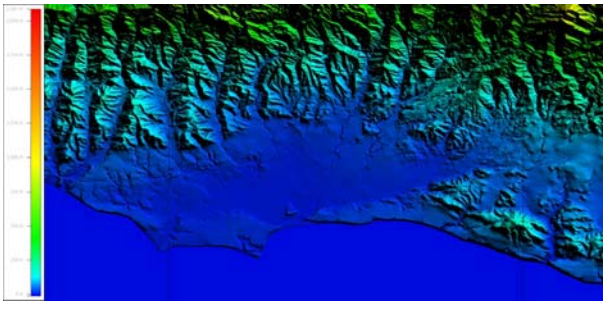
1:12450



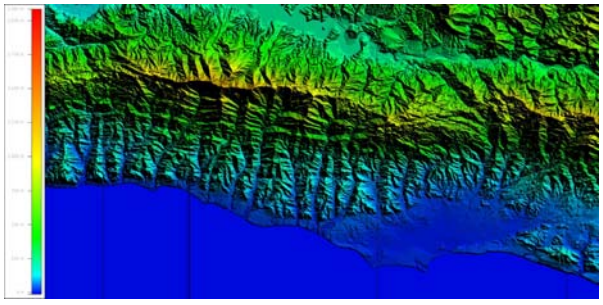
1:24910



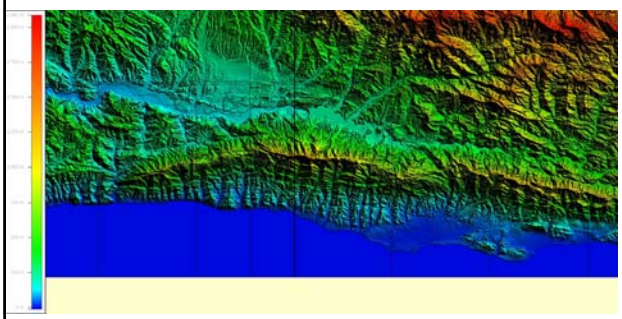
1:46390



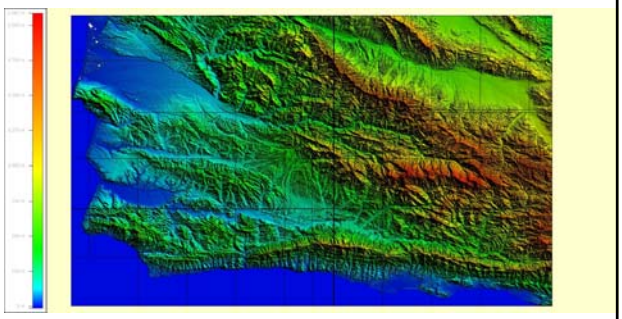
1:89060



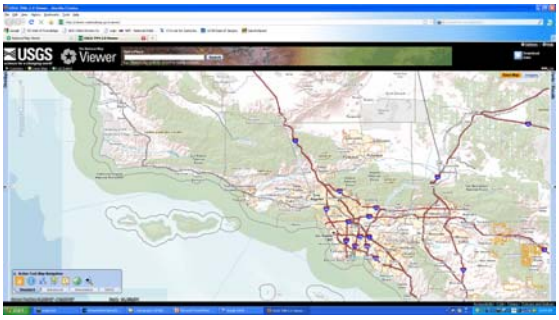
1:172 910



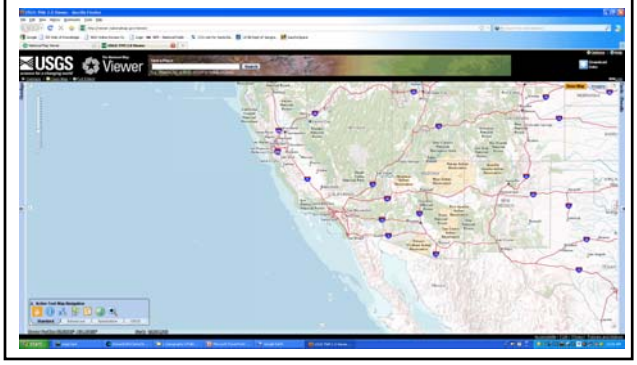
1:344 200



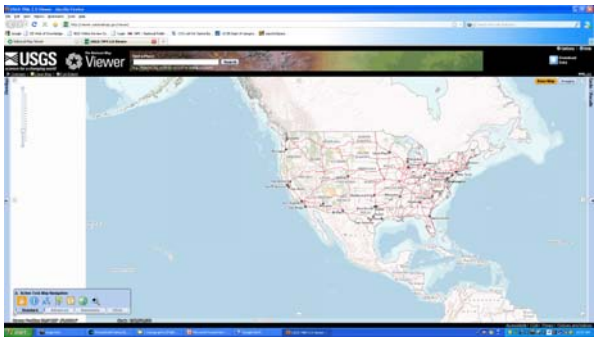
About 1:500 000



About 1:2M



About 1:5M



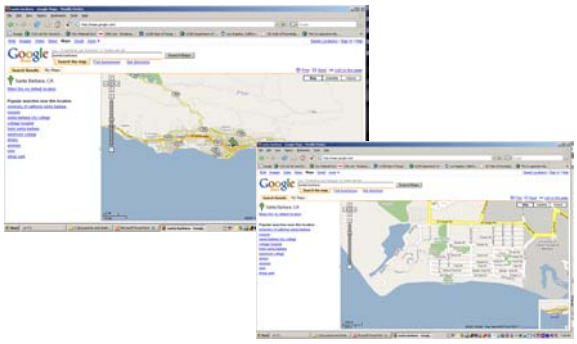
While we zoom

- Detailed to generalized
- Features drop off
- Jaggies to blurry
- Extent increases
- Earth model matters more
- Different levels of interpretation possible
- Hard to convert measurements with RF

Some common map scales
Round numbers makes life easier

- 1:24 000
- 1:50 000
- 1:100 000
- 1:62 500
- 1:63 360
- 1:250 000
- 1:500 000
- 1: 1M

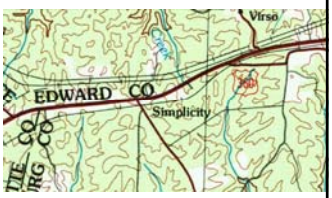
Zoom: New features at new scale

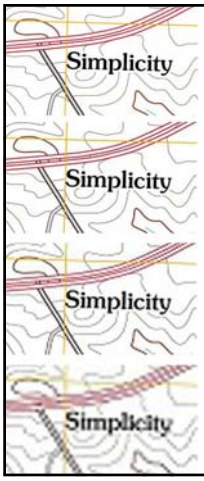


What happens as we generalize?

- Selection
- Simplification
- Combination
- Displacement
- Exaggeration

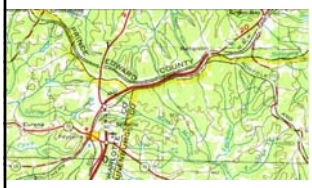
Simplicity, VA 17SQB2898706830





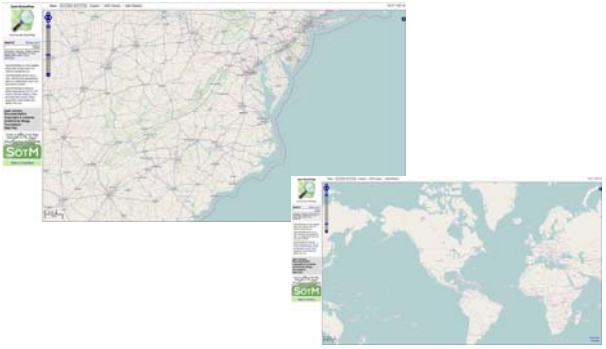
Just enlarging doesn't work

Intermediate Scales: Simplicity gone!



On OSM

Coarse scales



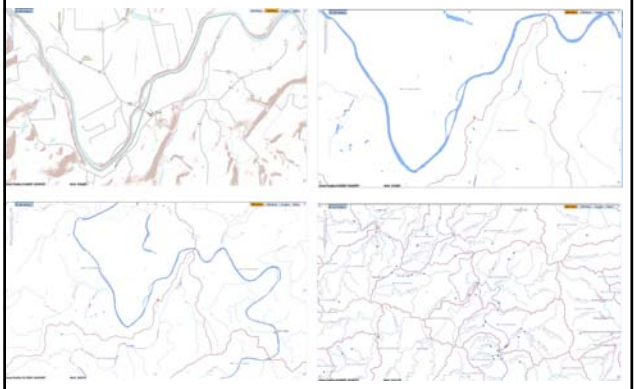
Selection

- The number of features and labels we can display depends on the space available!
- Need to select features to display by some criterion, e.g. population size of villages
- Need to carefully assign and place labels

Dawson City, 1 327
Montreal, 1 620 693

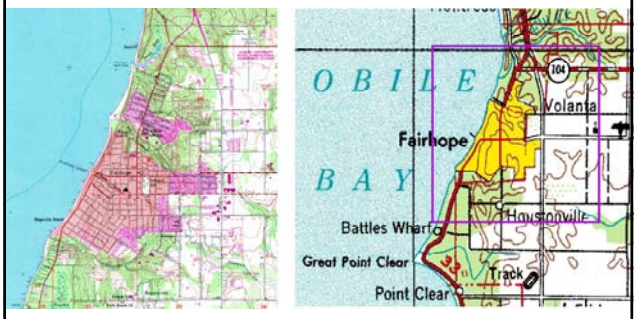
Simplification

Bend, TX: Simplification

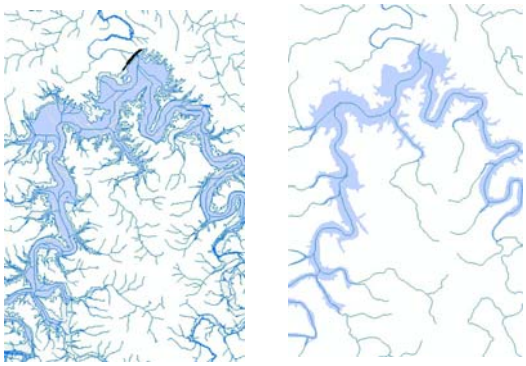


Combination

Fairhope, AL

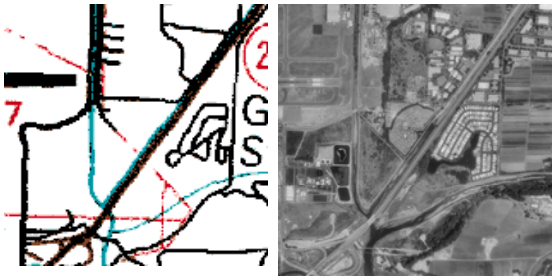


A complex process



Displacement: Separation Point, WY

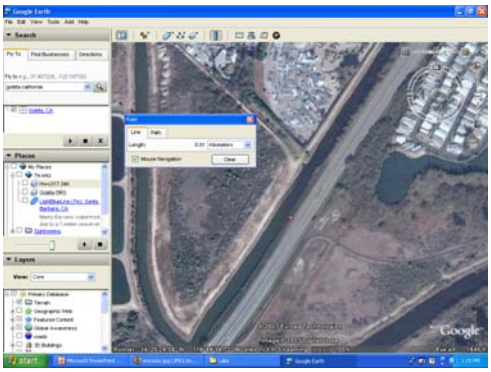
Displacement



Hwy 217

Highway 217, en route to the University.
Image courtesy of Caltrans.

Hwy 217 to canal = 10m

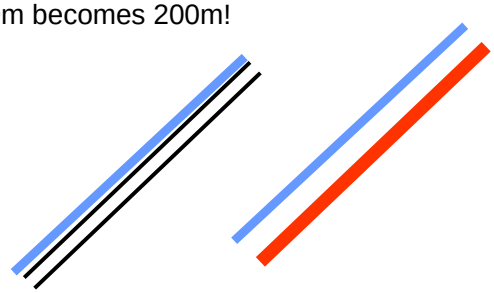


Without displacement, lines are not separable

- 10 m at 1:100,000 = 0.1 mm

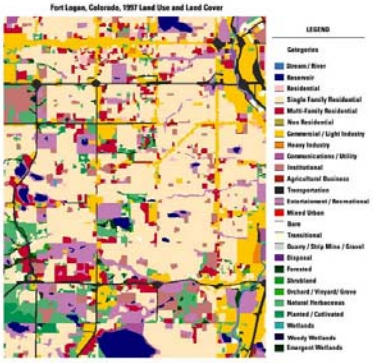
Solution: Move the lines!

- 10m becomes 200m!

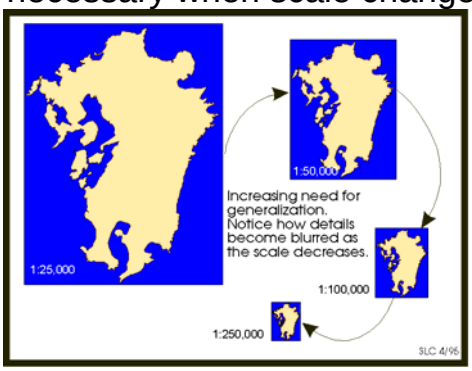


Exaggeration

Attribute generalization



Summary: generalization is necessary when scale changes



These things happens when we generalize

- Selection
- Simplification
- Combination
- Displacement
- Exaggeration