raster

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this version: Thursday 18th November, 2021 18:00

outline

intuition; why bother

raster

planet.com

Later/Explore at home: More Rasters

Later/Explore at home: Semi-Automatic Classification Plugin

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GIS area of its own

- can do a lot here
  - eg remote sensing–say figure out roads from pixels
  - another example is study of vegetation
- we will take it easy and just eyeball pictures
  - especially, i think, exploration of past is fruitful

past matters!

- much of present can be explained with past!
  - eg city growth, suburban sprawl, quality of housing
  - eg redlining and contaminations: `https://theaok.github.io/gis/gisGoodExampleOfFinalProject.pdf`
- it's also fun to look back into past
  - just like you look at your old pictures, look at the place
- aging `http://twistedsifter.com/2013/10/animations-show-how-faces-age-over-time/`
- satellite images `http://www.wired.com/2012/07/landsat-city-change/`
- Landsat website `http://landsat.gsfc.nasa.gov/?cat=4`

google street view has time too!

- https://www.google.com/maps/place/401+Cooper+St,+Camden,+NJ+08102/@39.9471578,-75.1218999,3a,75y,14.87h,90t/data=!3m7!1e1!3m5!1sITXQj8a5aM3Xj91QOfu4Fw!2e0!6s%2F%2Fgeo0.ggpht.com%2Fcbk%3Fpanoid%3DITXQj8a5aM3Xj91QOfu4Fw%26output%3Dthumbnail%26cb_client%3Dsearch.gws-prod%2Fmaps%2Flocal-details-getcard.gps%26thumb%3D2%26w%3D86%26h%3D86%26yaw%3D14.87242%26pitch%3D0%26thumbfov%3D100!7i13312!8i6656!4m5!3m4!1s0x89c6c8f0e64a7e77:0xb5b160dc340e83ec!8m2!3d39.9473113!4d-75.121837
- 401 cooper didnt change, but look at the dorm across the

actual application

- i think about research all the time
- including on the airplane
- and it struck me that there is so much concrete in TX
- can easily show it with satellite images [p 43]
- `https://drive.google.com/open?id=1Coj3CuwvzyoF2Rm_aOFg5sSOXkTzuZlV`

often can actually see better!

- with satellite images or from an airplane
  - can actually see better
- eg: most buildings and roads are build to trick you on the ground
  - nice look, but cheap, etc
  - it's interesting to see how it actually looks like
  - from a different perspective, on satellite image

other applications

- infamous presenation by collin powell at UN at the wake of Iraq attack
  - he claimed satelite images showed chemical weapons
- we have rasters for all of the world, and we dont have good "tradional" or "regular" data for all of the world, so we often use raster say satellite images to proxy economic activity

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got raster?

- we've done only vector data in this class
  - mostly shapefiles and kml
- there's also raster data
- raster=picture (+ coord to fit it on the map)
- we've skipped it because you can just use google maps
  - or OpenStreet map, etc (also within qgis)
- but sometimes pictures are better
  - higher resolution and/or over-time (old v new)

nj example

- start with our favorite
- `https://docs.google.com/uc?id=1xJDhcRCkgv7k4tNCa72Oog5bohV6dTB2&export=download`
  - (may actually have to start with well-behaved vec, otherwhise raster may get messed up projection/CRS)
- load to qgis; and then
- `https://newjersey.maps.arcgis.com/apps/webappviewer/index.html?id=d13ac68c0d0f46139673824bbf19ad66`

load raster to qgis

- first, make sure counties vector is loaded (again proj/CRS may get messed up)
- then:
  - use a checkerboard icon on the left, below vector squiggle,
  - to load our raster: navigate to unzipped JPEG file
- note that when you extracted zipped folder with JPEG,
  - there are also other files, like in shapefile case
  - these other files tell qgis where to put the picture on a map

load google satellite

- say we want to compare mid 90s to now
- could get newer (and better resolution) images
- but can just load goog satellite to get more current image
- QuickMapServices-Settings-More Services-Get contributed pack
  - and load Google Satellite
- and zoom in to Evesham township, have raster on top of google
  - and turn on/off raster to see past/present

print composer/layout

- can then put raster into print layout, just like vector
- note can draw elipse to point to something, just make style no brush ot have it transparent
- use arrows, to start it: left-click; to end: left-click AND right-click

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planet.com looks useful

- https://www.planet.com/pulse/planet-releases-arcgis-add-in-qgis-plugin-v2-0/

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more rasters

- `https://search.earthdata.nasa.gov`
- `https://earthexplorer.usgs.gov/`
  - seems comprehensive and powerful
  - need to signup and login
  - Search Criteria: just 'Coordinates' and 'Use Map' to select full map extent
  - under Data Sets, probably most useful is Aerial Imagery
  - say for NJ there is "High Resolution Orthoimagery"
  - and then Results:
  - Show Browse Overlay: will show img on map
  - and 'Download options' to download

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the plugin

- it has good reviews
- give it a try if you are into raster
- `https://plugins.qgis.org/plugins/SemiAutomaticClassificationPlugin/`

we're almost through

- what would you like to cover?
  - anything new?
  - cover anything again?
- maybe use some new data for examples?
  - I have an impression that we should go to lower level
  - title of this class is also (cross-listed) "urban mapping"
  - maybe do tracts/blocks in Philly or Camden ?
  - maybe zoning or public transportation?
  - other ideas?