Google

#GeoForGood19

Google

#GeoForGood19

Visualizing data in Google Earth Desktop

https://bit.ly/2kS1Nf5

Christiaan Adams & Sean Askay

Tuesday September 17, 2:45-3:45pm (G4G19 Breakout Session #6)

Raster Data

SE Asia Landcover dataset

- Download: glc2000n.tif

- For your own raster datasets, make sure they have:
  - RGB color bands
  - Projection = WGS 84 (EPSG:4326)

Import into Google Earth Pro (convert to KML)

The sample Image is too large to import as a single Ground Overlay

- Crop - Imports a section of the data around a point you select.
- Scale - Imports the whole dataset, at reduced resolution.
- SuperOverlay - generates a tiled version of your dataset, for viewing in Google Earth.
  - Makes a folder full of KML files and images.

For overlays with classified, discreet pixels, pixel blending can make your data look bad. Workaround is to multiply pixel size 2x (1 pixle becomes 4 pixels), or 3x (1 pixel becomes 9 pixels).

Vector Data - polygons

US States dataset

- Tiger Lines from US Census, with simplified geometries (0.001 degrees) and added an attribute for state's year of admission to the union.
- Download: tl_2010_us_state10_simp_years_shapefile.zip

Make a time-based visualization

- Export KML from QGIS (data layer menu > Export > Save Features As)
  - CRS = EPSG:4326 (WGS 84)
  - Include Name & year attributes.
  - Name = "NAME10".
- Edit KML in XML Editor (Notepad++, TextEdit, etc.)
  - Replace the <ExtendedData>... tags before the Year with <TimeSpan><when>
  - Replace the … </ExtendedData> tags after the Year with </when></TimeSpan>
  - Optional - shared styles: Copy style section to the Document, add id="my_style", and replace inline styles with <styleUrl>#my_style</styleUrl>

Styling polygons - Earth Pro Import

- Export Shapefile from QGIS
  - CRS = EPSG:4326
  - Include desired attributes.
- Import Shapefile into Earth Pro (Import menu or drag & drop)
  - Name tab - select Name attribute
  - Color tab - select "Set color from field" and "Select Color Field" = year_admit
  - Choose number of buckets (start w/3)
  - Choose Colors and bucket values

Styling Polygons - QGIS Export

- Install MMQGIS Plugin
- MMQGIS menu > Import/Export > Google Maps KML Export
  - Select Source dataset
  - Select Name field
  - Set up Description/balloon template as desired
  - Select Output folder/file and Save KML
- May need style adjustment in Earth or in KML file.

Vector Data tips & tricks

- KML itself, or the KML converter may work better if you…
  - Ensure correct projection: WGS 84 (EPSG:4326)
  - Geometry errors - make sure to correct invalid geometries before KML conversion
  - Convert Multipart to single part (KML can deal with multipart, but converter may not)
  - Remove special characters from attributes & use UTF-8
- Reduce size & complexity
  - Use shared styles & balloon templates.
  - Use Extended Data
  - Eliminate unused attributes
  - Reduce unnecessary coordinate decimal precision using RegEx (force to 6 digits)
    - Find this: "\.([0-9]{6})[0-9]+" Replace with this: "\.\1"
  - Remove zero altitude digits:
    - Find this: ",0{1,} " Replace with this: " "
  - Use simplification tools in your GIS software
    - Be aware of topology issues (common edges may separate or overlap) & techniques
  - Regionate your data (show subsets based on view & zoom level)

Visualizing data in Google Earth Pro (Desktop)

Description: Explore intermediate and advanced techniques for visualizing data in Google Earth Pro (desktop), including KML techniques, overlays, large datasets, time, etc.

Pre-requisites: Some experience working with KML and importing data into Google Earth. Install Google Earth Pro on Desktop from here

----

[Lab] Visualizing data in Google Earth Desktop

Participant feedback shows they are very interested in how to import/visualize complex or tricky datasets in Google Earth, including unwieldly shapefiles and Earth Engine data

Hold a lab where we choose 3 tricky / representative datasets and walk participants through how to clean them up / import them/ visualize them. Examples:

1. Shapefile with a lot of good data for styling (maybe also some KML editing to make nice infowindows out of metadata)

2. Shapefile (or some other format) that is huge (so a focus on how to improve performance of a big dataset in Earth Pro)

3. Earth Engine data - how to visualize data created in EE, in Earth Pro

Possible Topics

- GIS Data Import - shapefile, geotiff, etc.
- Other KML conversion options - QGIS, ArcGIS
- Tips
  - Projections
  - reduce complexity - Feature & vertex count
  - Multipart > singlepart
  - invalid geometries
  - special characters in attributes
- GPS data import
- Earth Engine - tile export? (not earth pro)
- Advanced techniques
  - Screenoverlay (legends & logos)
  - NetworkLinks
  - Time
  - Snippets
  - Hover labels (Stylemap)
  - ExtendedData & ballooon templates
- Large datasets - radio buttons, regions, etc.
- KML vs KMZ
- Tours & Touring

Agenda

- CSA - Import raster overlay as geotiff, superoverlay. show multi-res to reduce pixel blending.
- CSA - Vector file, states w/years. Convert to KML w/ QGIS and/or Earth Pro. Show Time, colors, etc.
- Item 3
- Item 4
- Item 5