Geol 452/552 ArcScene Exercise 1

Copy the "\delphi\GEOL552\data\ArcScene ex 1" folder into your student folder

Run ArcMap with CA_air_pollution.mxd

Note the different data types:

- CA_DEM - raster of California/Nevada terrain elevation in feet
- ca_urban_centers - polygons with population (POP2000) and area (POP00_SQMI)
- ca_NO2_pts – Nitrogen Oxide air pollution measurements (NO2AAM)

In which method is each of them symbolized?

Start ArcScene but do not quit ArcMap

Add data by Right-click-Copy a layer in ArcMap and Right-Click-Paste (on Scene layers) it into ArcScene:

One by one, copy these three layers from ArcMap to ArcScene.

Navigation in ArcScene: left-click drag to rotate, mouse wheel to zoom, middle-mouse drag: pan (move)

For each ArcScene layer 2 x click on (= Layer properties):

Under Base Heights, activate “Obtain Heights from layer ...” (should point to the DEM layer).

2 x click on “Scene layers” (Scene Properties, same as a Data frame in ArcMap), under General set the vertical scale to 10 x - what happens to the terrain? (You may also change the background color)
For CA_DEM layer only, change the Layer Properties - Rendering - Effects: Activate "Shade areal features relative to light position" and “Use Smooth Shading” (set both to ON).

In the ca_NO2_pts layer, open the Layer Properties – Extrusion. Activate “Extrude features …”, use [NO2AAM] * 500000 as expression (multiplies each NO2 point with 500,000 into a elevation column):
In the **ca_urban_centers** layer, open the Layer Properties – Extrusion. Activate “Extrude features ...”, uses \([\text{POP2000}] / [\text{POP00_SQMI}] \times 6\) to express the population density as elevation:

![Extrusion Example](image1)

**Optional:**

In the DEM’s Layer Property - base heights, set the size of the resolution of the underlying raster to 1000 for x and y, this improves the quality of the terrain visualization:

![Resolution Example](image2)

**More things to try:**

In Scene Properties, change the azimuth (compass), Altitude (sun angle) and contrast, (the main display changes as you change the yellow blobs!). Try a low sun angle and high contrast:

![Scene Properties Example](image3)
Symbolize the NO2 pollution with a graduated color scheme (dark to light):

Flight simulator mode (no guns, though): Change to Fly mode, point the mouse to steer the aircraft, left-click= faster, right-click = slower, **Esc-key = Stop**.

If you “crash” or get lost, click the Full Extend button (right blue/green globe icon):

And Finally – try **ArcScene in 3D**:

As we’ll use anaglyphic (red-cyan) “glasses” you need to change your data to NOT use reds and greens first! Switch the urban_area polygons to a blue-ish color scale and the CA_DEM to grayscale (black->white).

In View->View Settings, switch **Stereo View -> Red/Blue Anaglyph**, put on the glasses and you should a 3D effect. If your red “lens” is on the right side you need to “**Reverse left/right**”, if you still see two separate images, lower the **Eye Separation** slider until your eye fuse the two images together (should be around 1.0, certainly more than 0.01).

Have fun - but don’t get lost in the 3. dimension (like this guy did!)