

A world map visualization showing population density. The landmasses are colored in shades of orange and yellow, with darker areas indicating higher population density. The map is overlaid with a grid of latitude and longitude lines. The background is a dark green color.

Fascinating Visualization and QGIS

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Data: GHS_POP, EU
Software: Aerialod
Author: Alasdair Rae

Digital Elevation Model (DEM)



DEM Data Source

- <https://www.diva-gis.org/gdata>

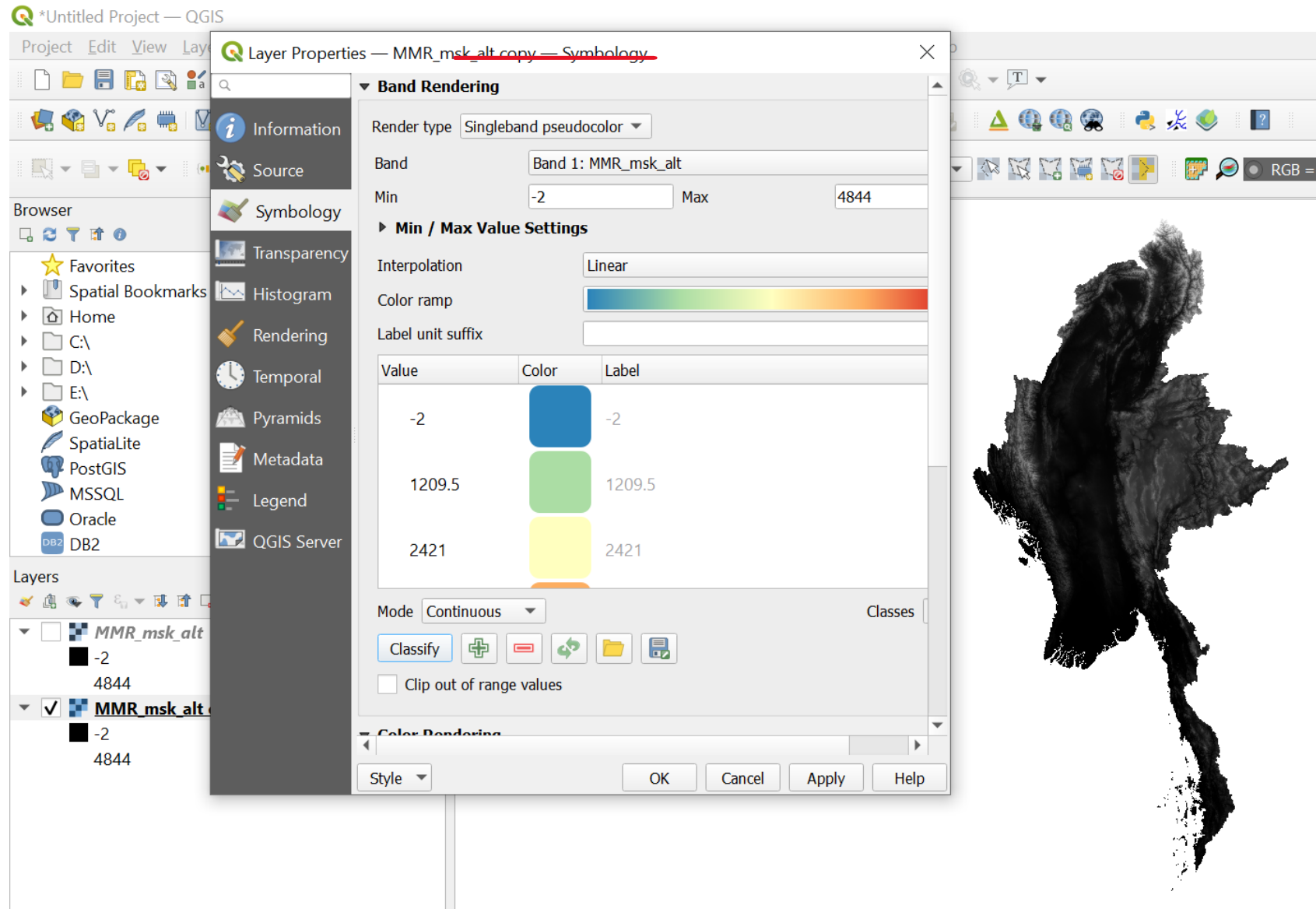
Software

- QGIS 3.14 (Plugins: qgis2threejs)

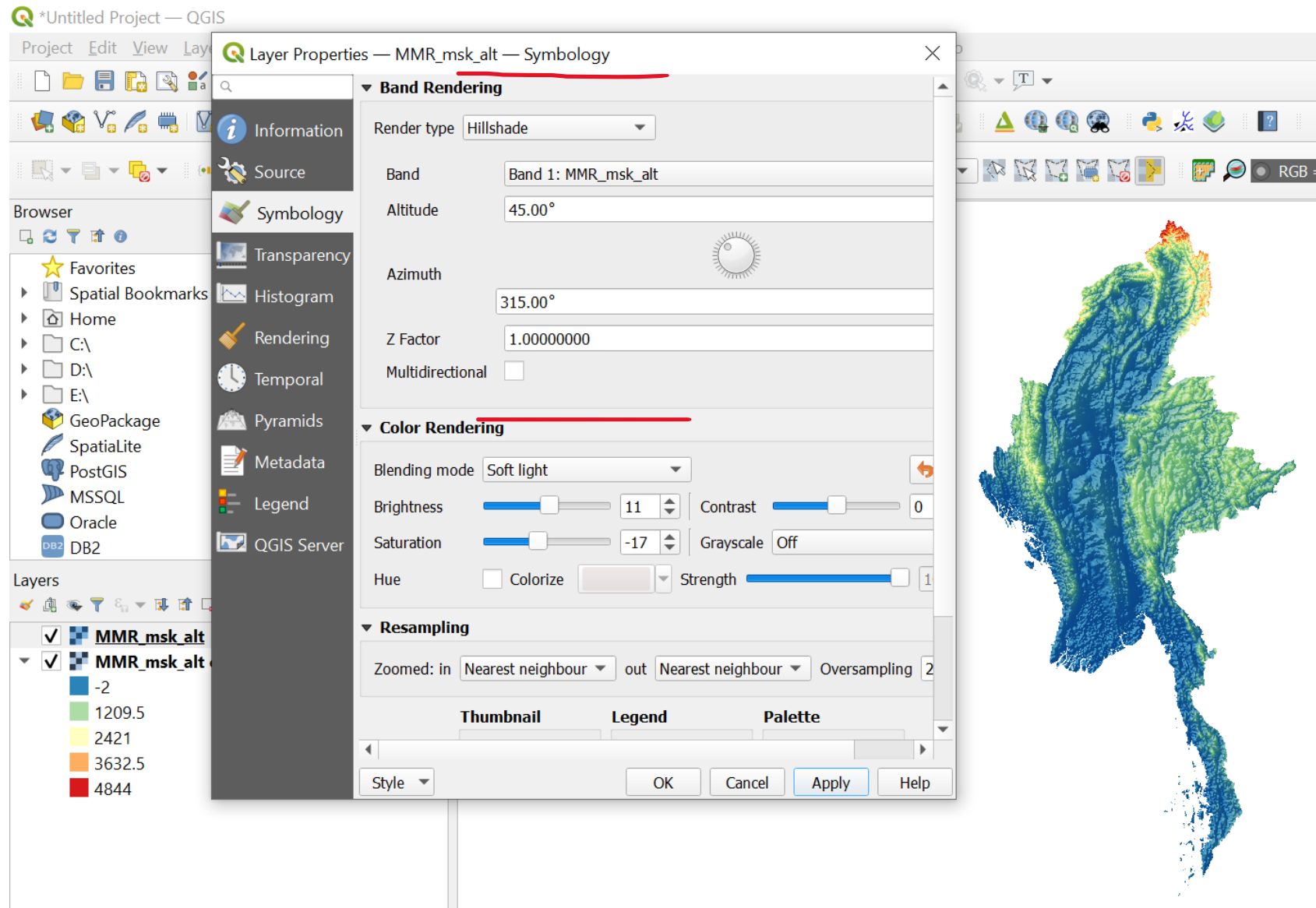
Key Operation

- Singleband pseudocolor
- Soft light
- Hillshade

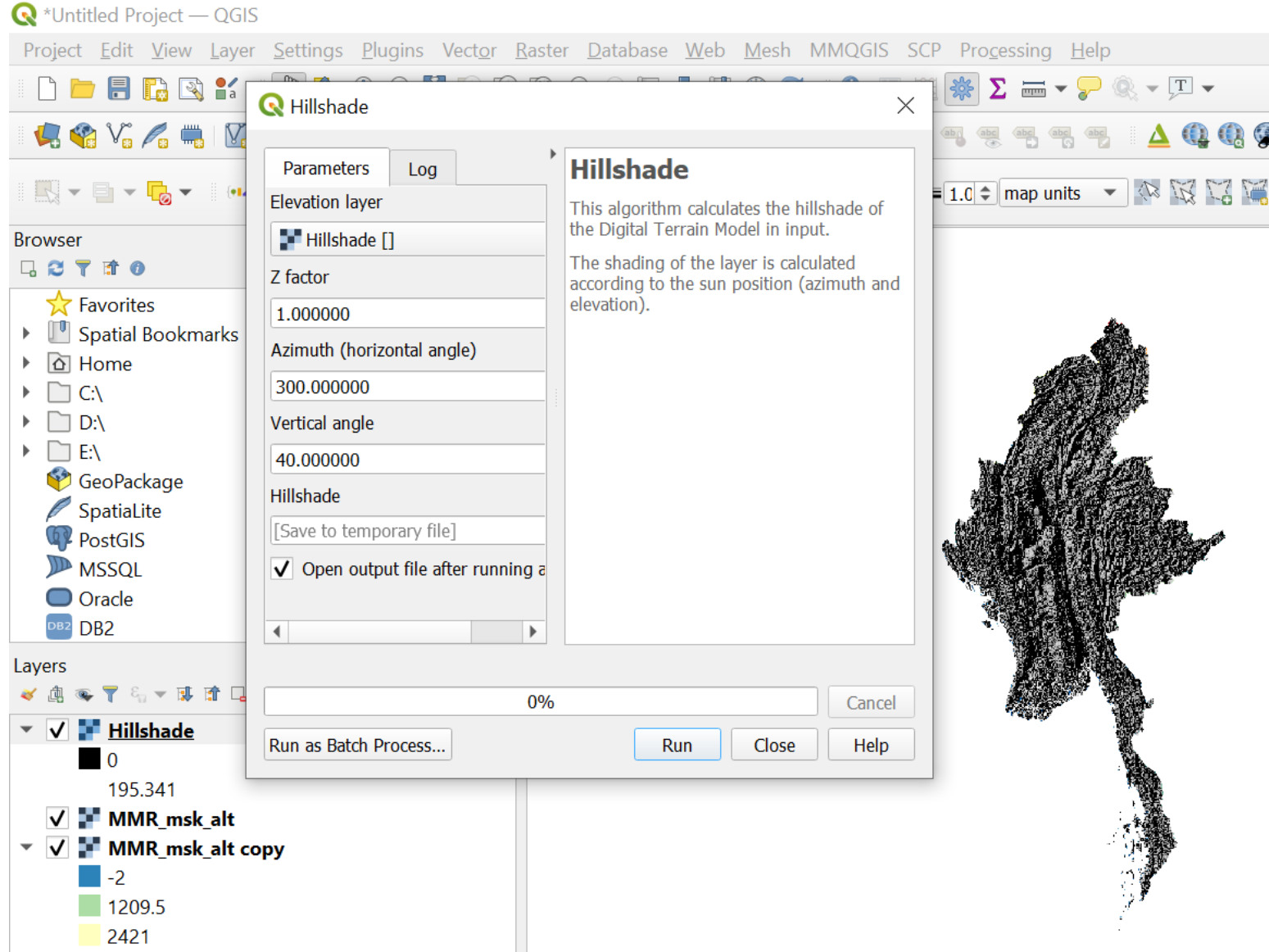
Digital Elevation Model (DEM)



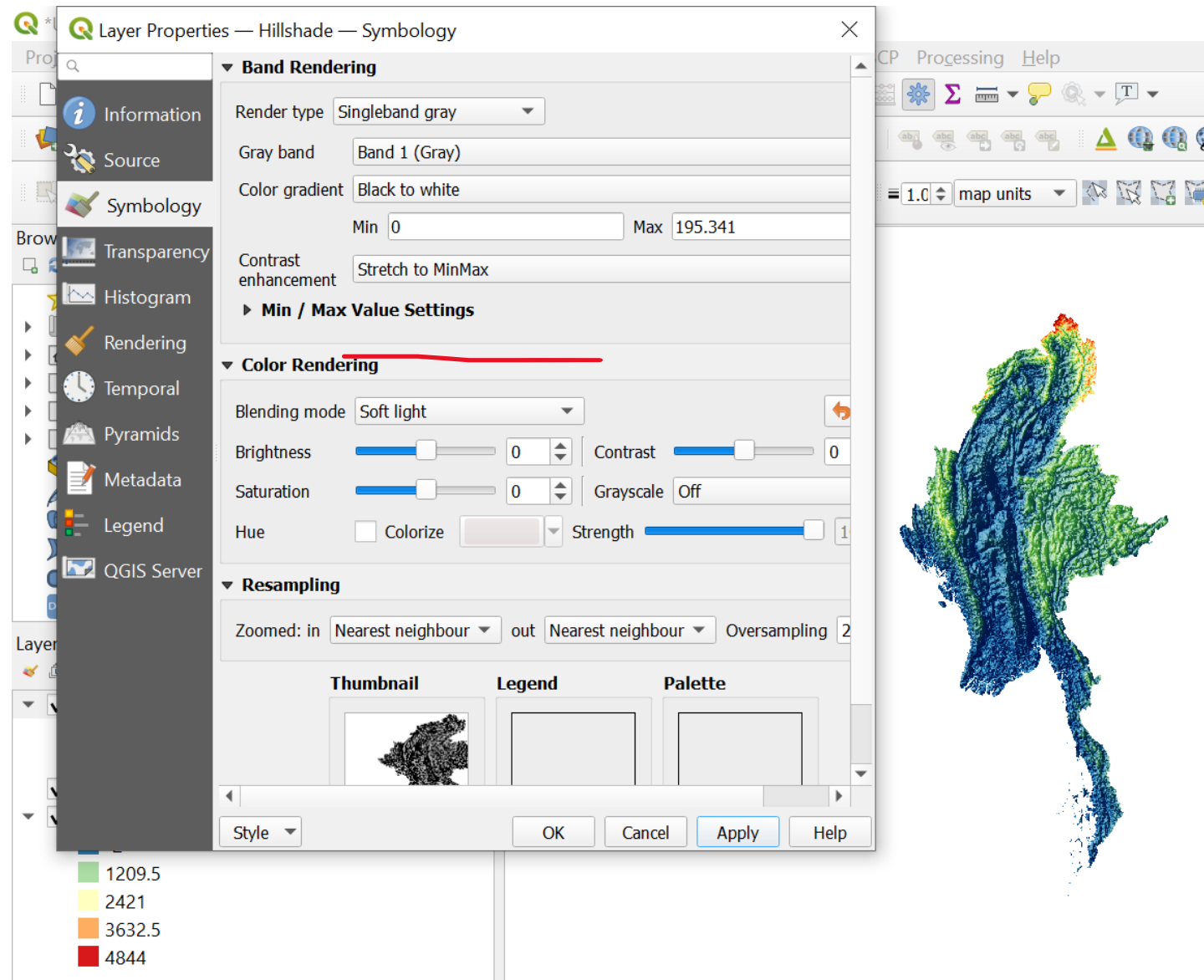
Digital Elevation Model (DEM)



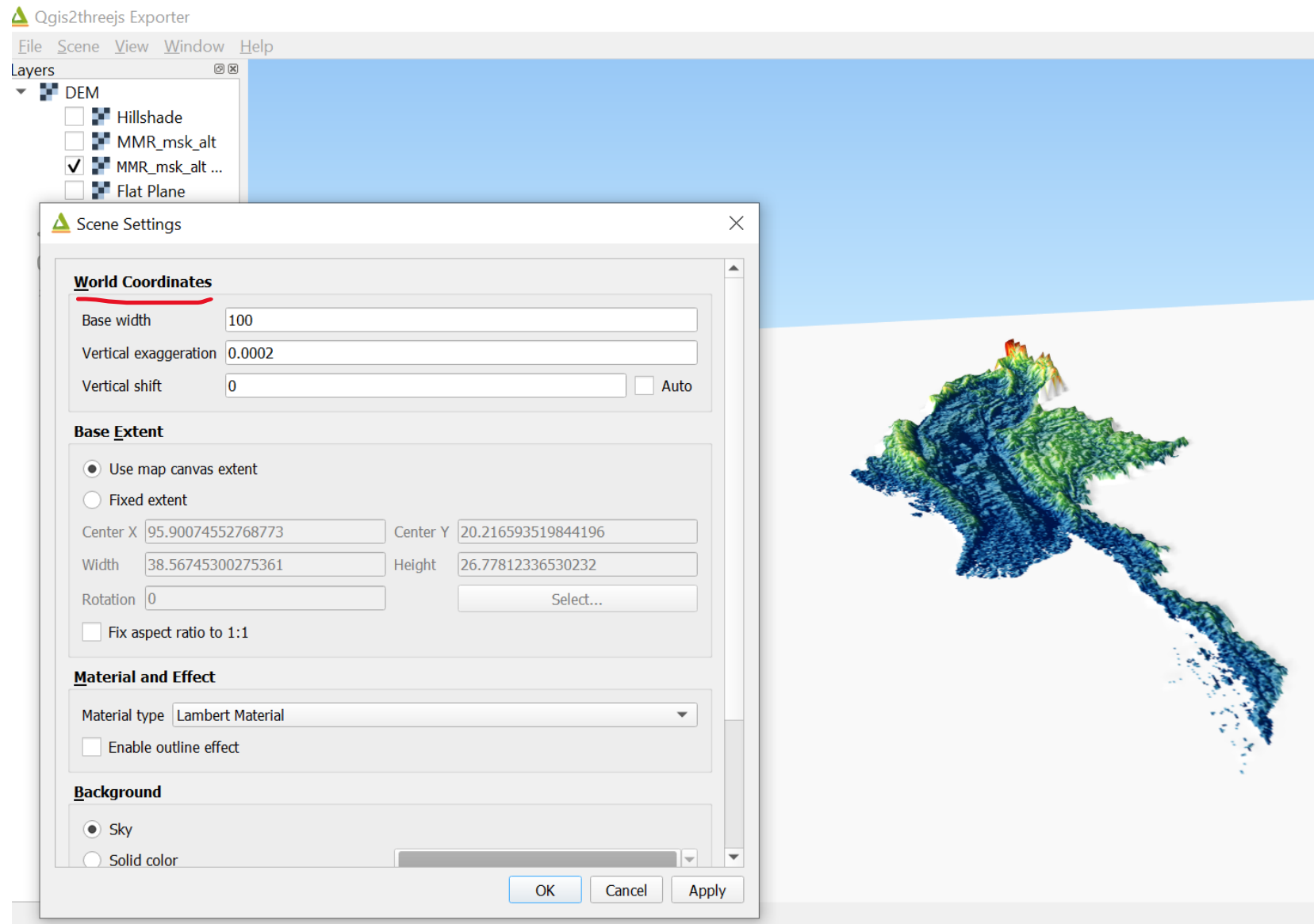
Digital Elevation Model (DEM)



Digital Elevation Model (DEM)



Digital Elevation Model (DEM)



3D Population Map

Data Source

- <https://www.worldpop.org/geodata/summary?id=39730>

Software

- QGIS 3.14
- Aerialod

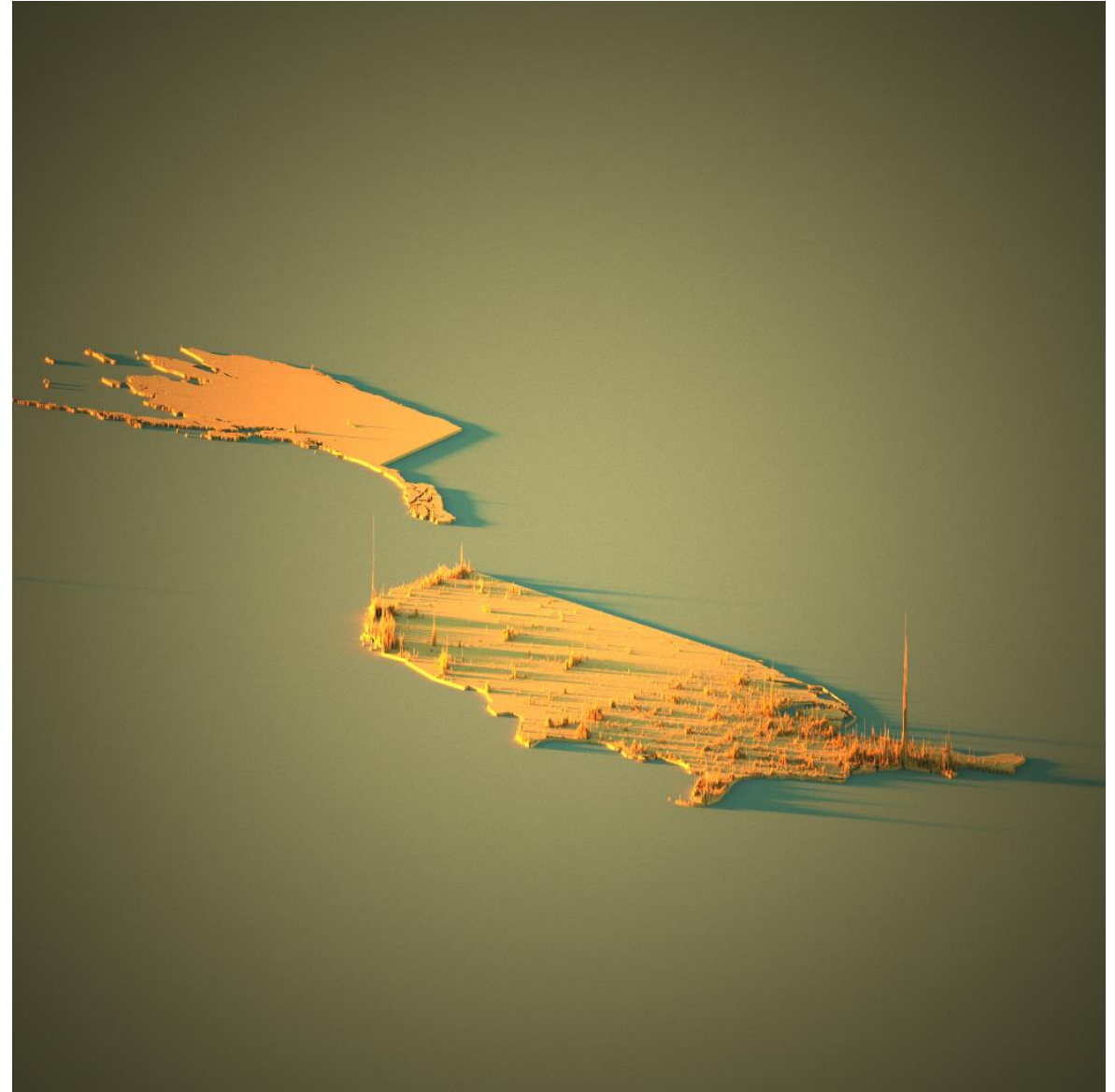
<https://ephtracy.github.io/index.html?page=aerialod>

Key Operation

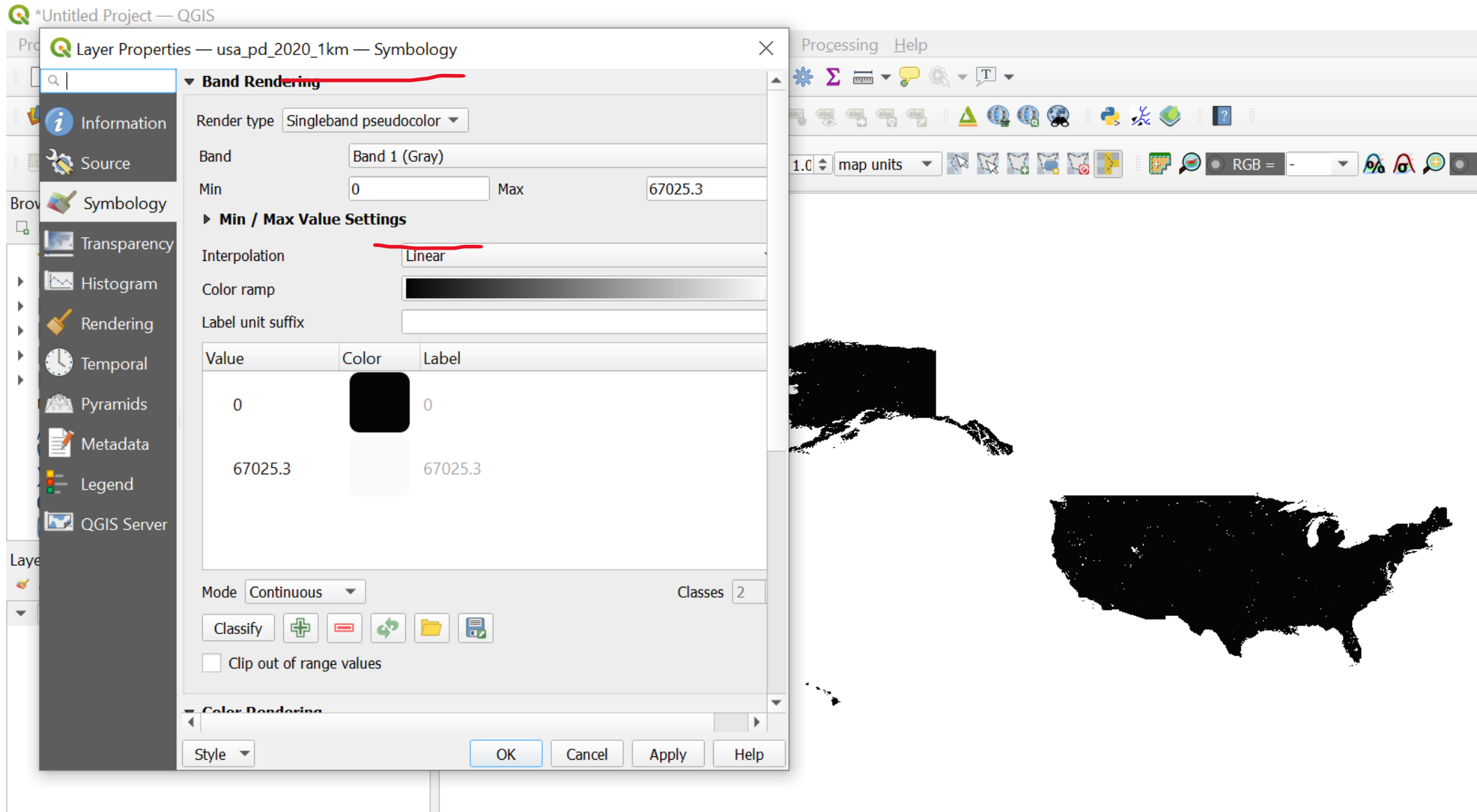
- <http://www.statsmapsnpix.com/2020/11/how-to-make-3d-population-density.html>

Fascinating Maps

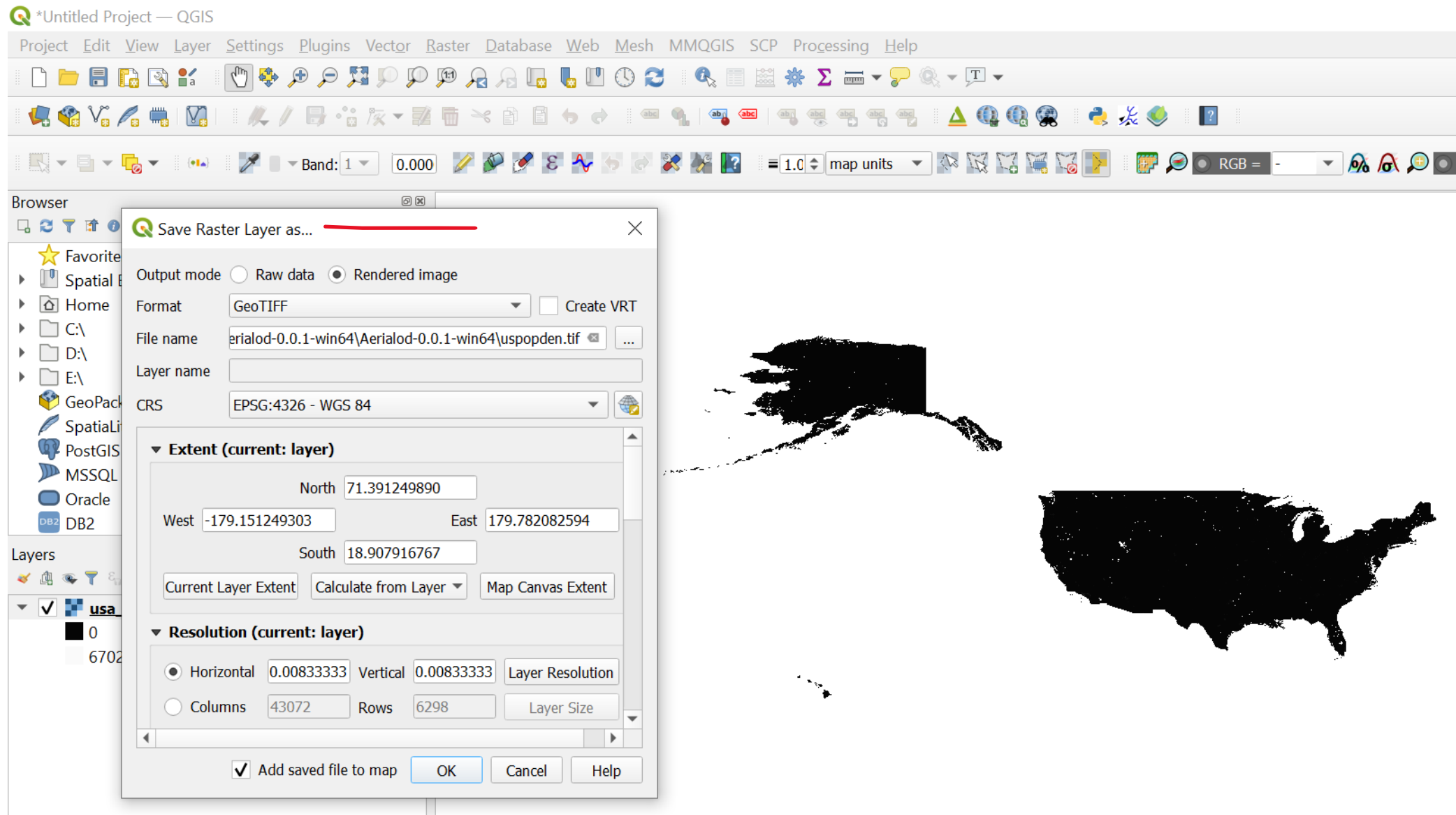
- <https://vividmaps.com/3d-mapping-global-population-density/>
- https://pudding.cool/2018/10/city_3d/



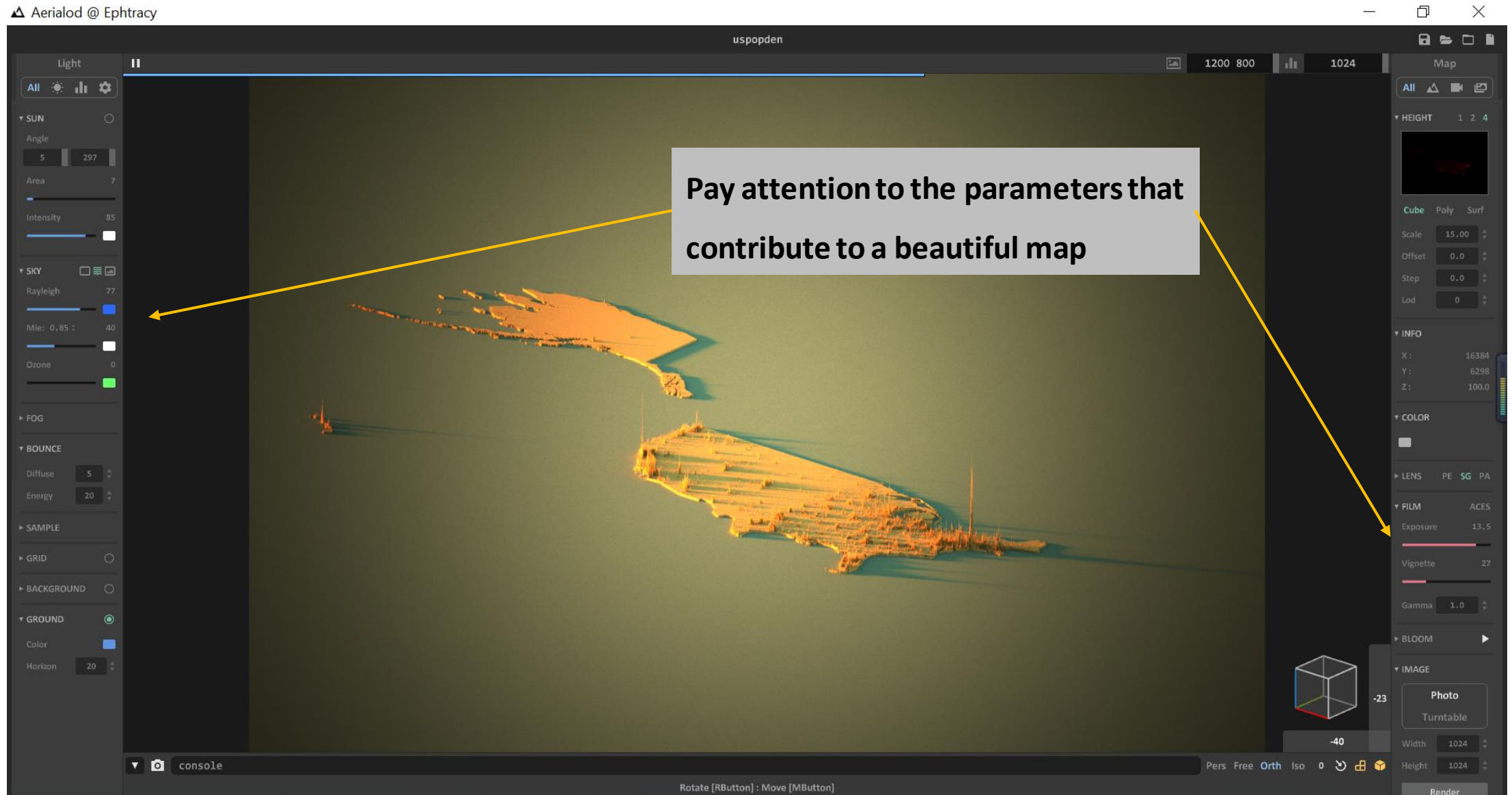
3D Population Map



3D Population Map



3D Population Map



Population Change

Data Source

- <https://sedac.ciesin.columbia.edu/data/set/gpw-v4-population-density-rev11/data-download>

Software

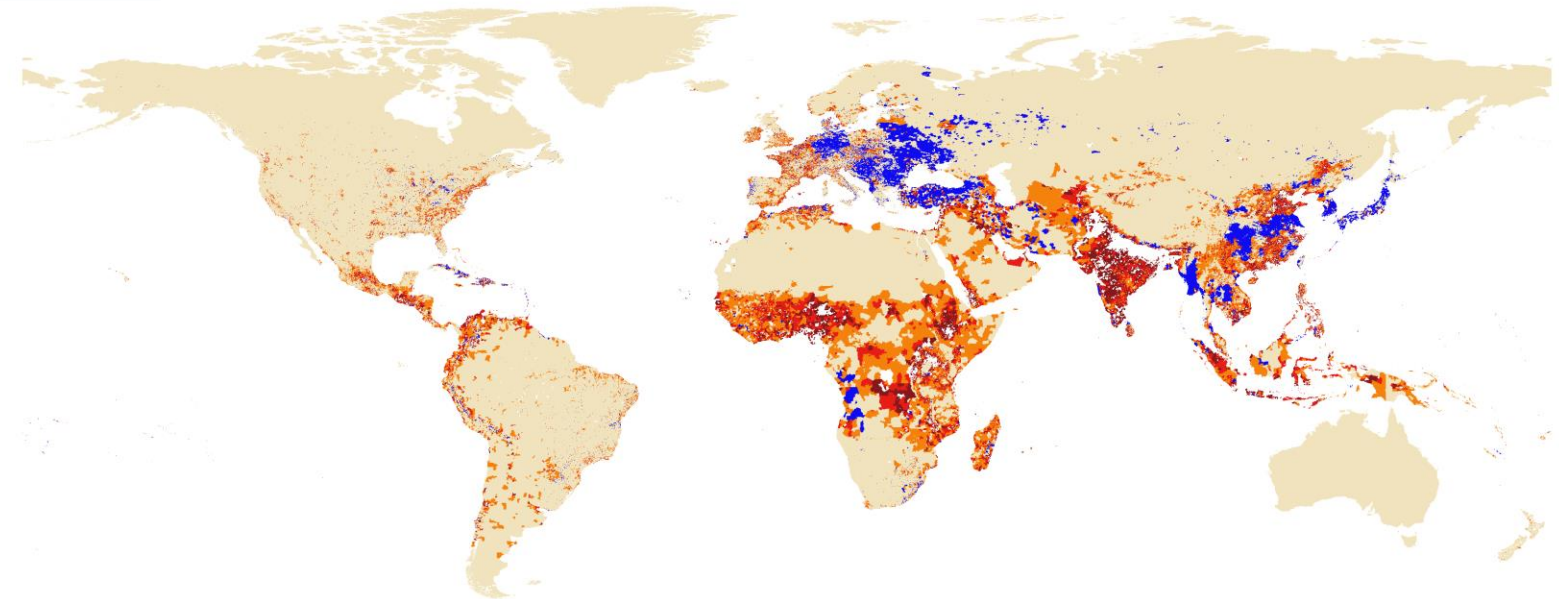
- QGIS 3.14

Key Operation

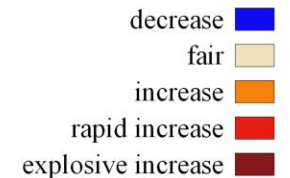
- Singleband pseudocolor
- Raster Calculator
- Interpolation→Discrete

Questions

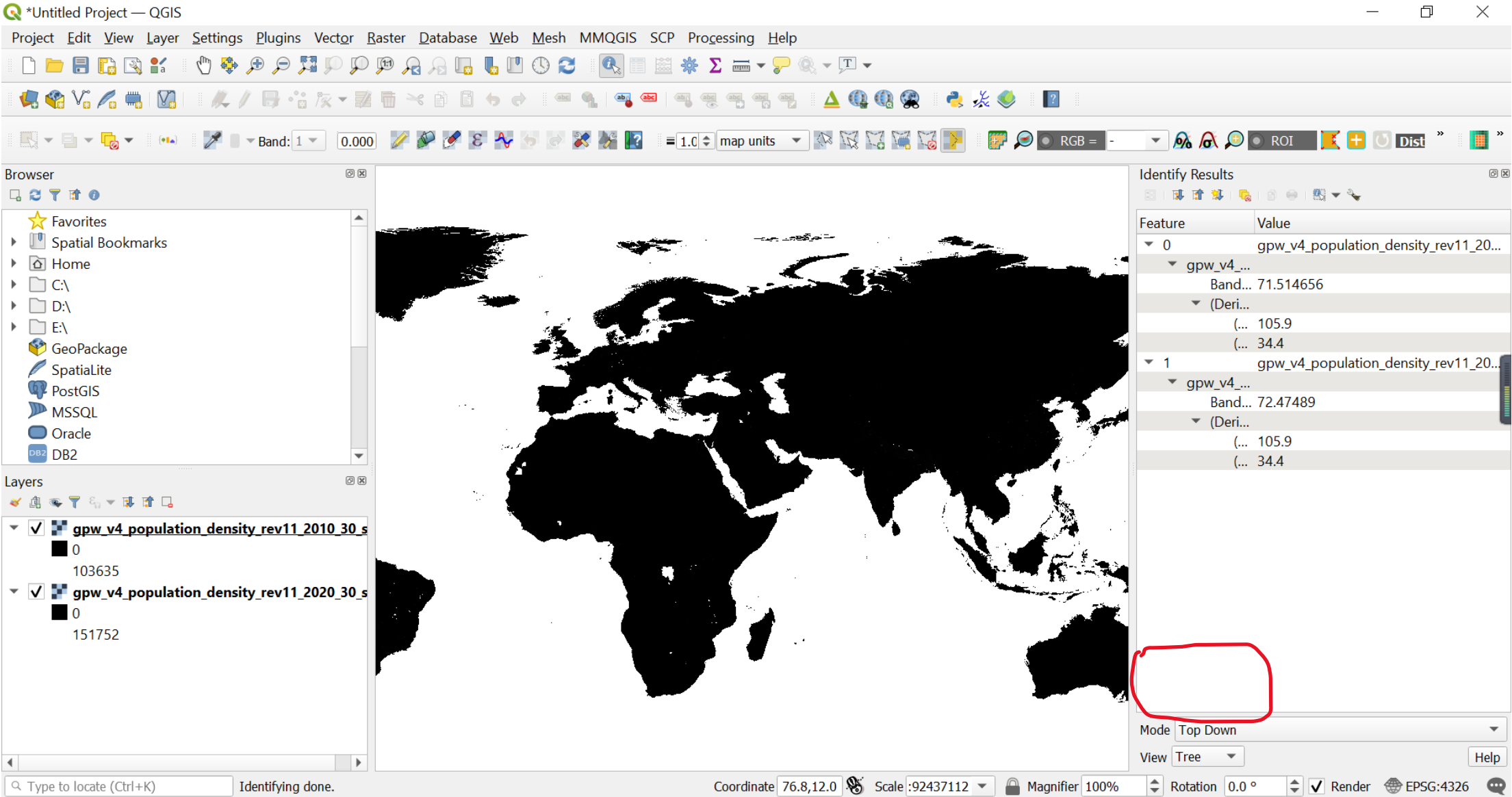
- What is the standard for classifying the population change into decrease, increase, etc.
- How to explain the change of min and max after setting cumulative count cut?



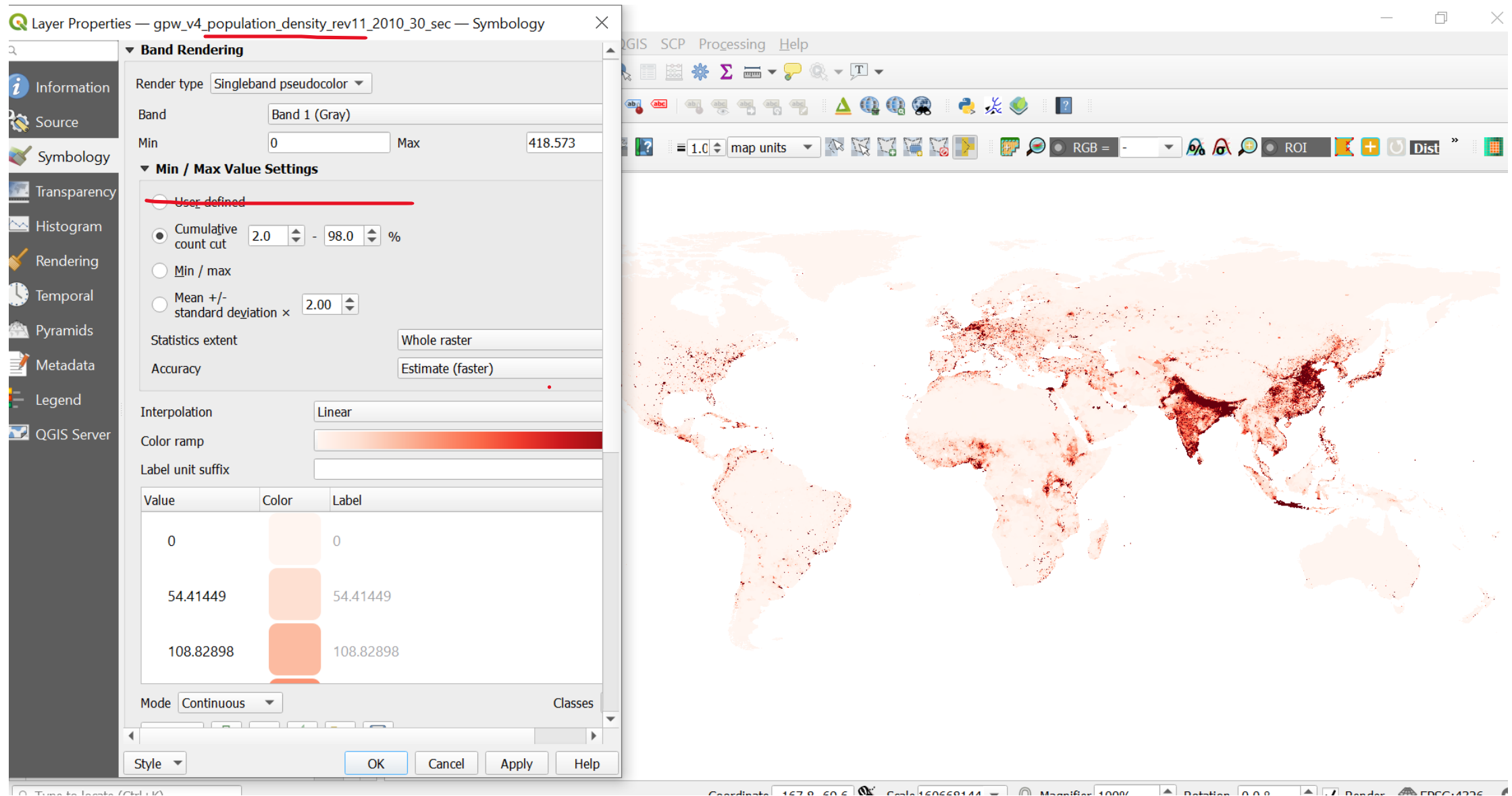
World Population Change (2010-2020)



Population Change



Population Change



Population Change

The image shows the QGIS desktop environment. The main map window displays a world map with a black and white population density overlay. The left sidebar contains the 'Browser' and 'Layers' panels. The 'Layers' panel shows a list of layers, including 'gpw_v4_population_density_rev11_2010_30' and 'change'. The 'Raster Calculator' dialog box is open on the right, showing the expression editor. The expression is set to 'gpw_v4_population_density_rev11_2010_30 - gpw_v4_population_density_rev11_2020_30'. The 'Operators' panel shows various mathematical and logical operators. The 'Expression' field contains the text: "gpw_v4_population_density_rev11_2020_30@1" - "gpw_v4_population_density_rev11_2010_30@1". The 'Predefined expressions' section shows 'NDVI' as a predefined expression. The 'Run as Batch Process...' button is visible at the bottom of the dialog. A status bar at the bottom right shows the current layer as 'r.li.edgedensity' and a message: 'You can add more algorithms to the toolbox, [enable additional providers.](#) [close]'. The top menu bar includes Project, Edit, View, Layer, Settings, Plugins, Vector, Raster, Database, Web, Mesh, MMQGIS, SCP, Processing, and Help. The top toolbar contains various icons for file operations, navigation, and processing.

QGIS *Untitled Project — QGIS

Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh MMQGIS SCP Processing Help

Browser

- Favorites
- Spatial Bookmarks
- Home
- C:\
- D:\
- E:\
- GeoPackage
- Spatialite
- PostGIS
- MSSQL
- Oracle
- DB2

Layers

- gpw_v4_population_density_rev11_2010_30
- 0
- 54.41449
- 108.82898
- 163.24347
- 217.65796
- 272.07245
- 326.48694
- 376.7157
- 418.573
- change

Raster Calculator

Parameters Log

Expression

Layers

- change@1
- gpw_v4_population_density_rev11_2010_30@1
- gpw_v4_population_density_rev11_2020_30@1

Operators

- +
- *
- cos
- sin
- log10
- AND
-
- /
- acos
- asin
- ln
- OR
- ^
- sqrt
- tan
- atan
- (
-)
- <
- >
- =
- !=
- <=
- >=
- abs
- min
- max

Expression

"gpw_v4_population_density_rev11_2020_30@1" - "gpw_v4_population_density_rev11_2010_30@1"

Expression is valid

Predefined expressions

NDVI

Add...

0%

Run as Batch Process...

r.li.edgedensity

You can add more algorithms to the toolbox, [enable additional providers.](#) [close]

Population Change

Cummulative count cut or Min/max?
Why the Min and Max change in this way after setting
cumulative count out?

Layer Properties — change — Symbology

Band Rendering

Render type: Singleband pseudocolor

Band: Band 1 (Gray)

Min: -4.46592 Max: 59.5208

Min / Max Value Settings

- ☐ User defined
- ☒ Cumulative count cut 2.0 - 98.0 %
- ☐ Min / max
- ☐ Mean +/- standard deviation x 2.00

Statistics extent: Whole raster

Accuracy: Estimate (faster)

Interpolation: Linear

Color ramp: [Color ramp bar]

Label unit suffix: [Empty field]

Value	Color	Label
27.52744	[Yellow]	27.52744
43.52412	[Orange]	43.52412
59.5208	[Red]	59.5208

Mode: Continuous

Classes: 5

Classify [Buttons]

Style [Dropdown]

OK Cancel Apply Help

Coordinate: -189.0, -17.7 Scale: 160190656 Magnifier: 100% Rotation: 0.0 ° Render EPSG:4326

Population Change

