

# The Use of Geoinformation in (Anticipatory) Humanitarian Action

Karen Dall, Alec-Schulze Eckel und Melanie Eckle-Elze



**Deutsches  
Rotes  
Kreuz**



HEIDELBERG INSTITUTE  
FOR GEOINFORMATION  
TECHNOLOGY

A world map with a blue background representing the oceans. The landmasses are covered with a complex, pixelated pattern of colors including green, yellow, orange, red, and white. This pattern represents raster data, such as land cover or elevation, overlaid on the geographical map. The colors vary across different regions, with some areas showing more uniform colors and others showing more fragmented patterns.

# Raster Data

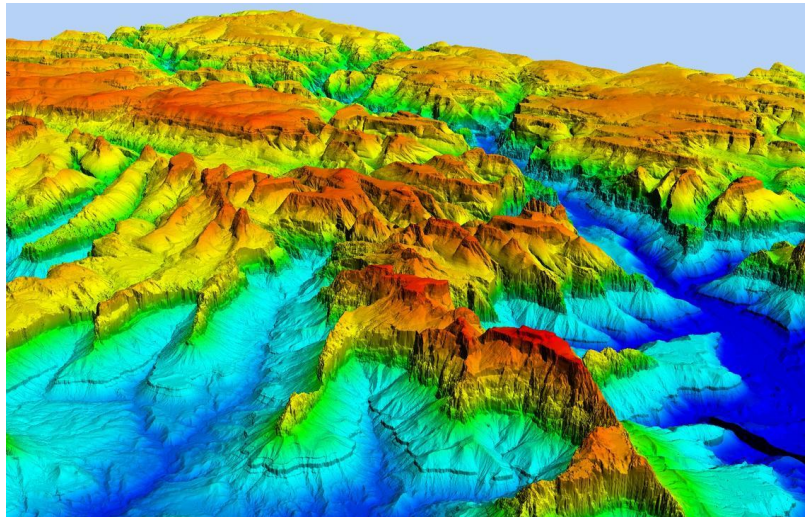
## Loading in QGIS and Operational Example



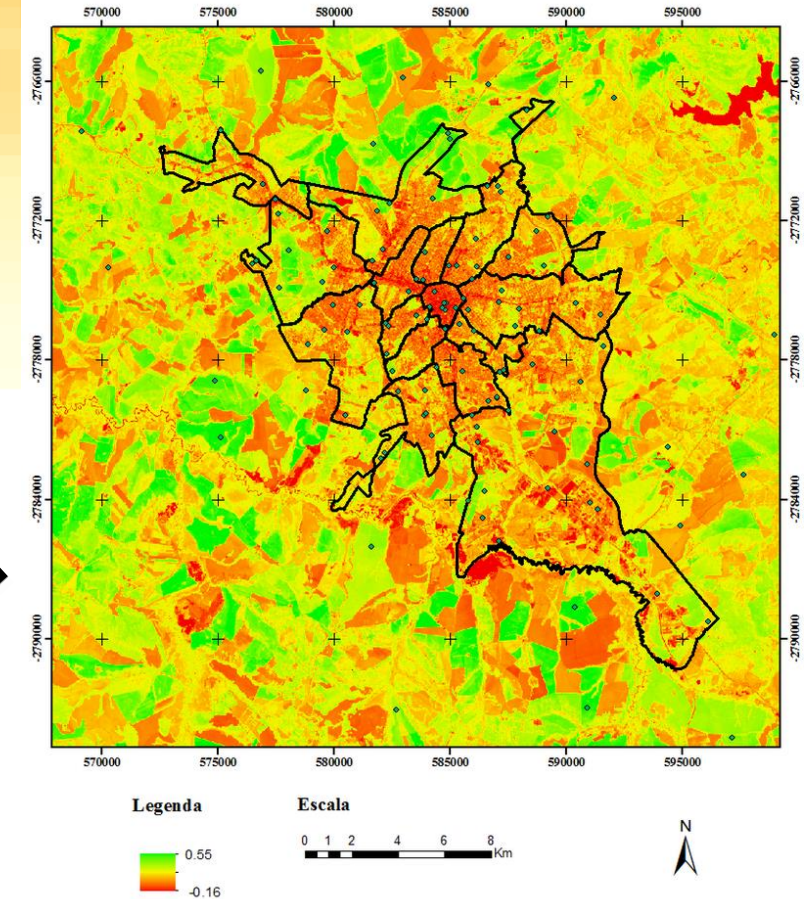
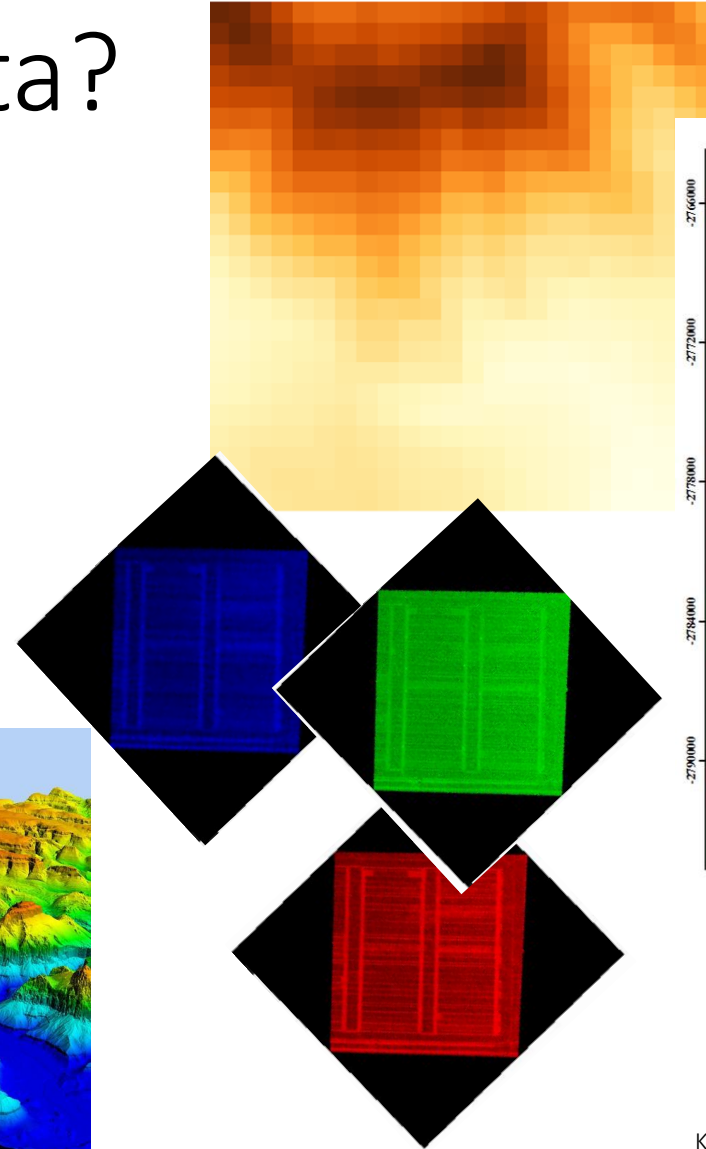
# What is Raster Data?

Examples:

- Digital Elevation Models
- Base Map Data
- Image (Multi-Band Raster)



[gisanalyse.de/dem-daten](http://gisanalyse.de/dem-daten)



Org: KUBASKI, K; CRUZ, G. C. F.

Kauan Mateus Kubaski and Gilson Campos Ferreira da Cruz using Landsat data from the U.S. Geological Survey - Eigenes Werk, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=74264899>

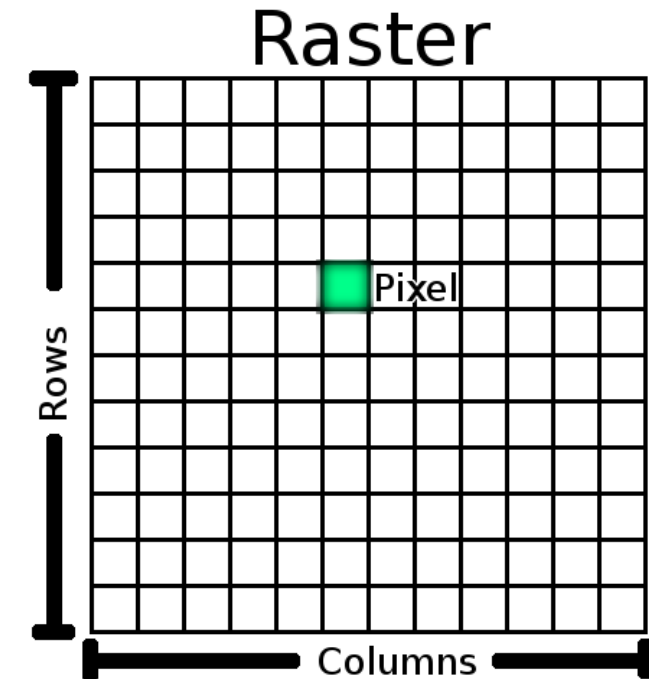
# Raster versus Vector

## Raster

- Made out of a great number of pixels which form a “digital photo”
- Work well for the representation of continuous features (e.g. elevation)
- Relatively high data volume
- Uniform resolution
- No individual objects

## Vector

- Points, Lines and Polygons
- Work well for the representation of discrete features
- Complex geometries
- Relatively low data volume
- Flexible resolution



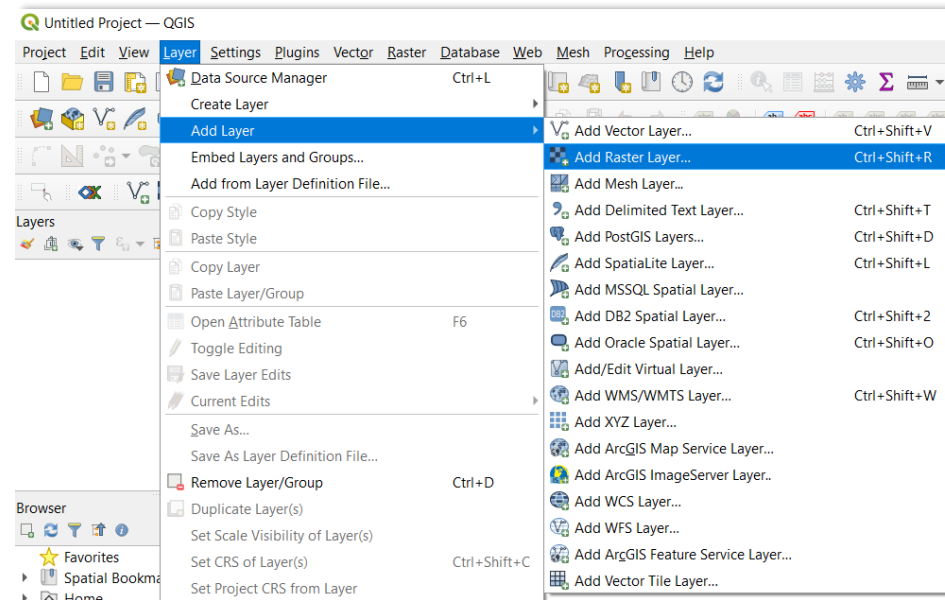
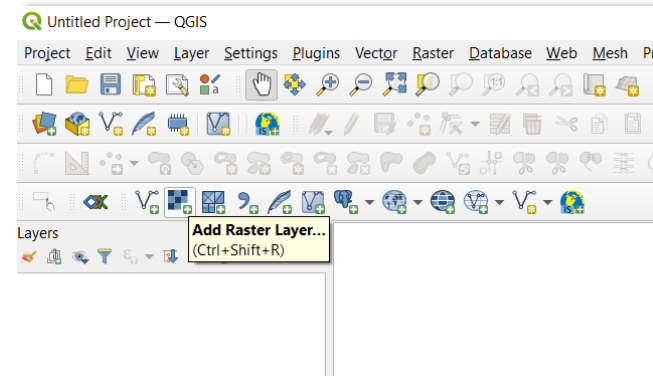
[docs.qgis.org/2.18/de/docs/gentle\\_gis\\_introduction/raster\\_data](https://docs.qgis.org/2.18/de/docs/gentle_gis_introduction/raster_data)

# Loading Raster Data in QGIS

- Click „Add Raster Layer“ in the toolbar

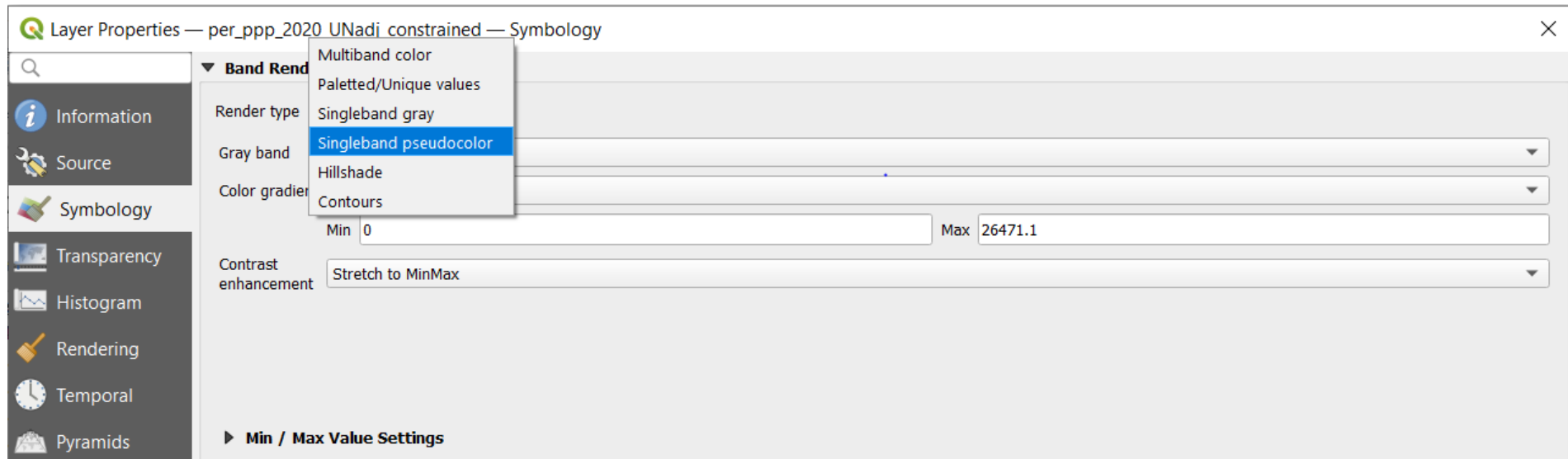
OR

- „Layer Menu“
  - „Add Layer“
    - Raster Layer“



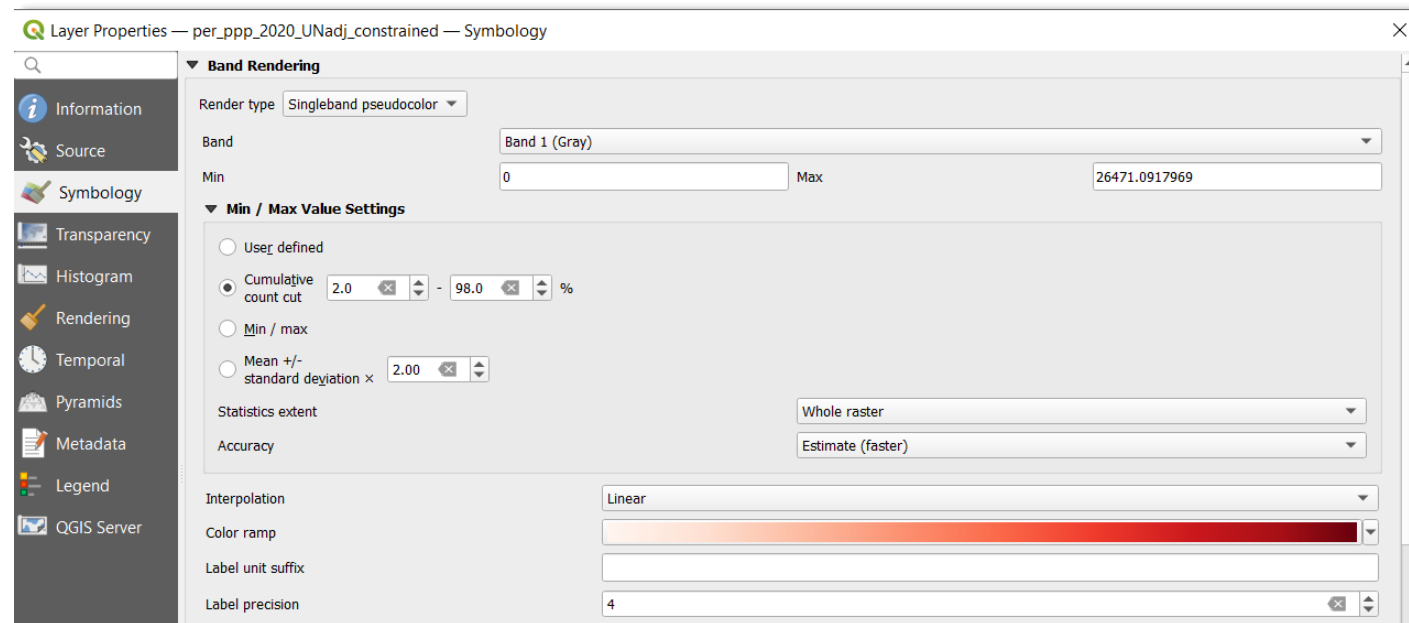
# Basic Raster Styling

- Open the „Symbology“ (Right click on layer and open „Properties“)
  - Change the „Render type“ to „Singleband pseudocolor“



# Basic Raster Styling

- The default is a white/redish color ramp (feel free to adjust)
- Change the „Min / Max Value Settings“ by changing to „Cumulative count cut“ to cut the outliers and to get a more representative visualization.

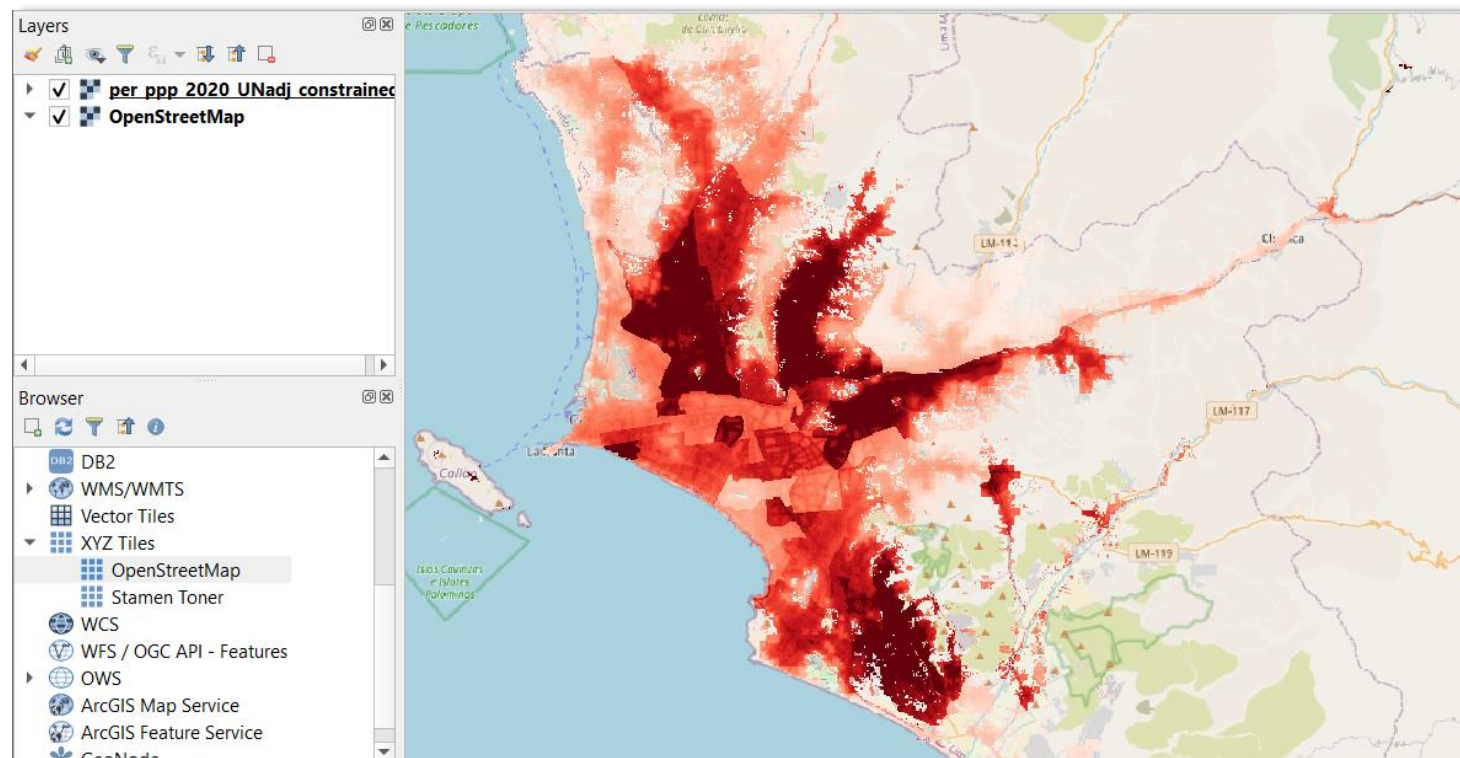


Hint: If you have more than one layer with similar setup (e.g. population count in different years), you can just copy the style (right-click on layer, „Styles“, „Copy Style“/„Paste Style“)



# Basic Raster Styling

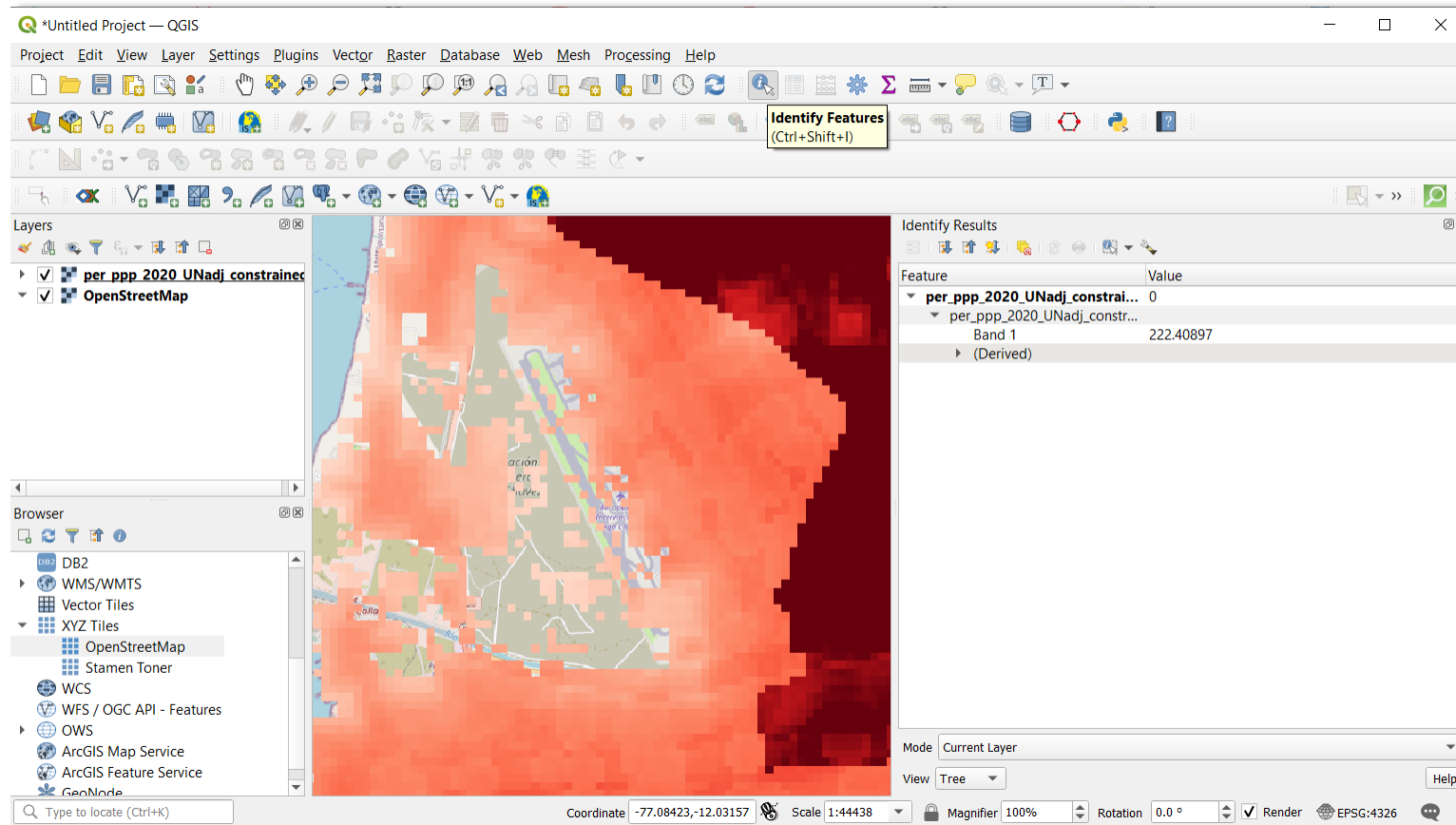
- Zoom in to have a closer look at the data
- Feel free to also add „OpenStreetMap“ as a basemap





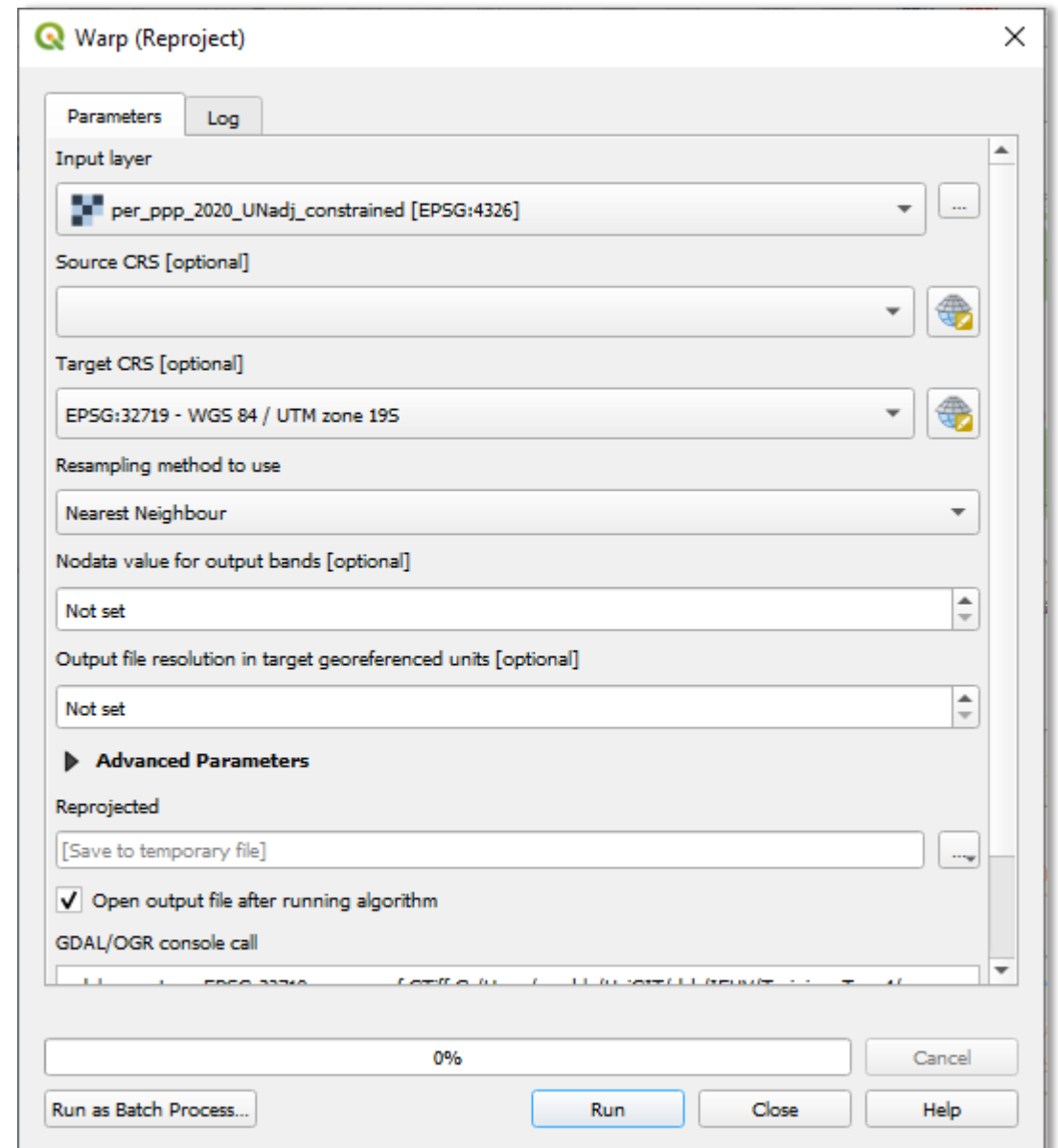
# Basic Raster Styling

- Use the „Identify Features“ Tool to explore the dataset



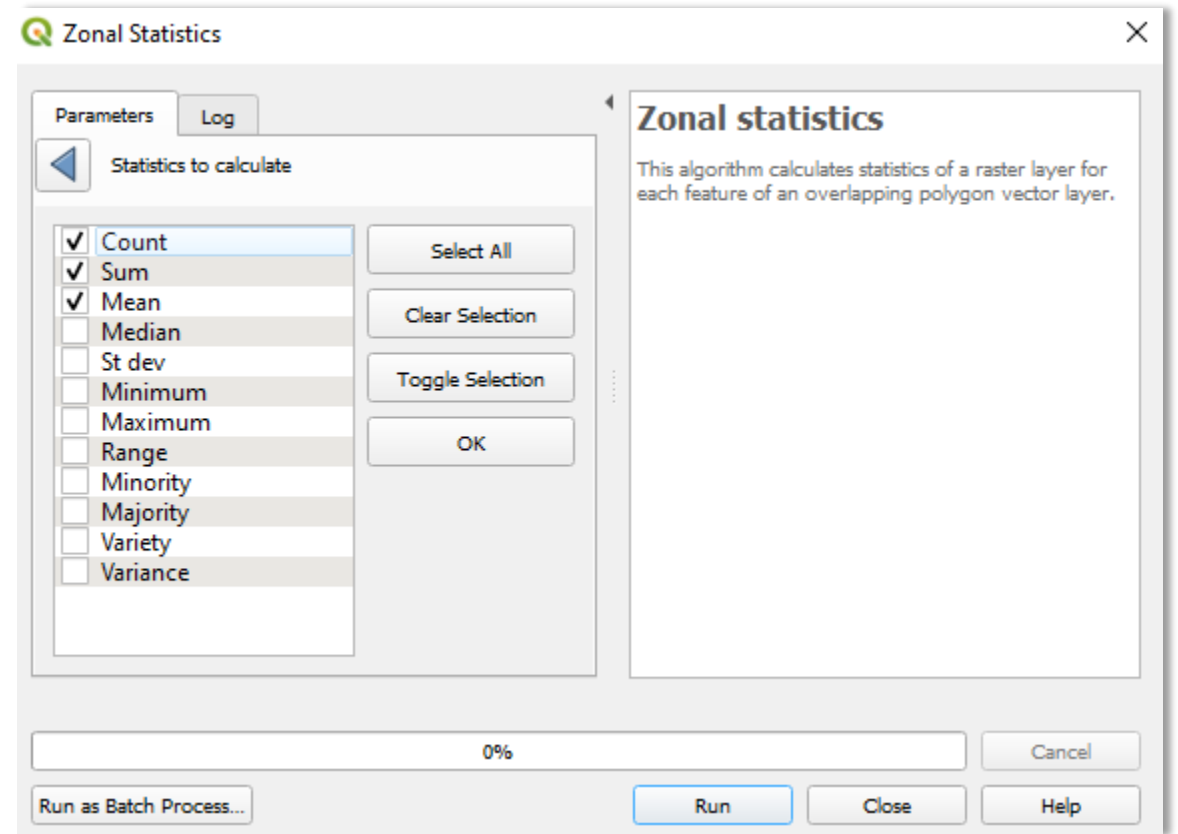
# Reproject Raster Layer

- Use the „Warp (Reproject)“ Tool
- Select the input layer
- Set the Target CRS
- Choose “Nearest Neighbour” as Resampling method
- Run the query



# Zonal Statistics

- Open the „Zonal statistics“ tool
- Select the vector input layer and raster input layer
- Choose the statistics you would like to calculate
- Choose a folder for your output.



A world map with landmasses colored in green, yellow, orange, and red, and oceans in blue. The text is centered over the map.

# Hands-OSM

and  
Operational Example