LECTURE – 12

WORKING WITH RASTER DATA IN QGIS

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Content

- Working with Raster Data
- Terrain Analysis
  - Hillshade
  - Slope
  - Aspect
- Contouring using DEM Raster

Working with Raster Data

- Symbology
- Virtual Raster
- Reprojection
- Merging

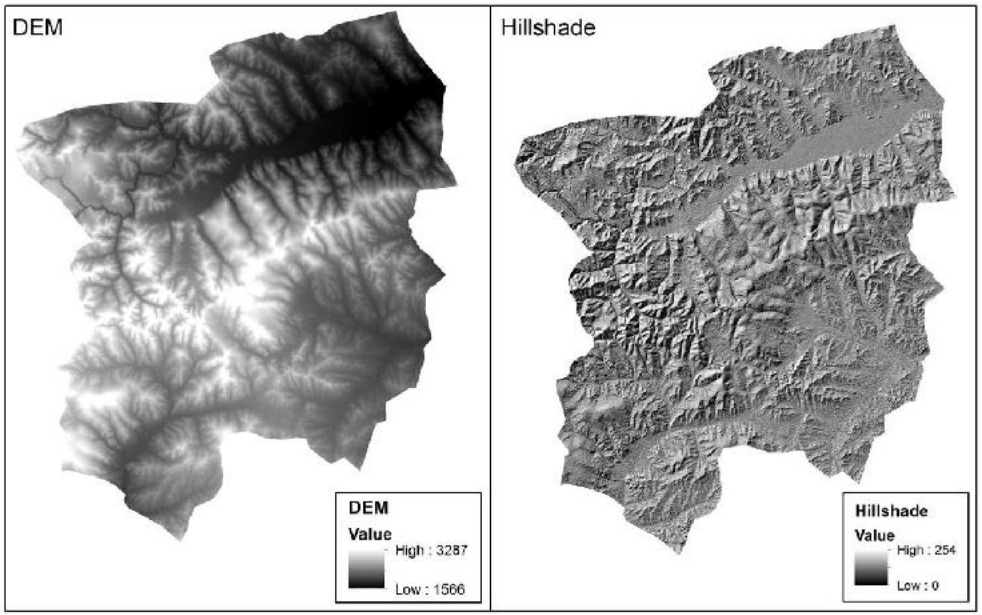
Terrain Analysis

- Certain types of rasters allow you to gain more insight into the terrain that they represent.
- Digital Elevation Models (DEMs) are particularly useful in this regard.
- Terrain analysis tools are used to get more information about a raster.

Terrain Analysis: Hillshade

Hillshade

- A hillshade is a grayscale 3D representation of the surface, with the sun's relative position taken into account for shading the image.
- Hillshading creates a three-dimensional effect that provides a sense of visual relief for cartography



Terrain Analysis: Hillshade

- **Hillshading in QGIS**
  - Load DEM raster
  - Raster > Terrain Analysis > Hillshade
  - Specify the following parameters:
    - Elevation Layer
    - Output Layer
    - Output Format
    - z Factor
    - Illumination values (altitude and azimuth of sun)

Terrain Analysis: Slope

Slope

- Slope represents the rate of change of elevation for each digital elevation model (DEM) cell.
- To determine slope for a DEM in QGIS:
  - Raster > Terrain Analysis > Slope
  - Specify raster layer
  - Specify output layer name and format
  - Specify z factor

Terrain Analysis: Aspect

Aspect

- Aspect identifies the downslope direction of the maximum rate of change in value from each cell to its neighbors.
- Aspect can be thought of as the slope direction.
- The values of the output raster will be the compass direction of the aspect.
- To determine Aspect for a DEM in QGIS:
  - Raster > Terrain Analysis > Aspect
  - Specify raster layer
  - Specify output layer name and format
  - Specify z factor

Terrain Analysis: Relief

- Perform Relief and Roughness Index analysis by yourself!

Extraction

- Raster > Extraction > Clipper
- Raster > Extraction > Contour

References

- ESRI Community
- QGIS User Manual
- A Gentle Introduction to GIS