Quadrant II- Glossary

Programme : **S.Y.B.A./S.Y.B.Sc.**

Subject : **Geography**

Paper Code : **GES 108**

Paper Title : **Application of GIS in Geography**

Unit: II : **DEM, GPS, Geographical Data & DBMS**

Module Name : **DEM: Aspect analysis and slope analysis**

Module No : **21**

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➢ DEM (Digital Elevation Model):

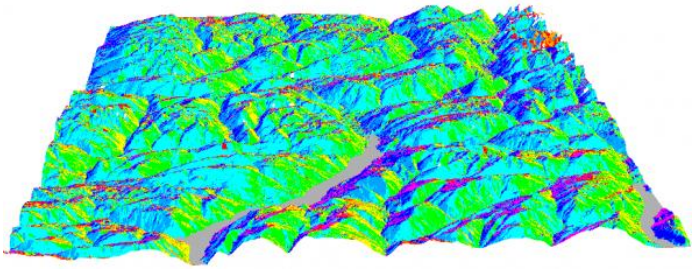
DEM is a digital representation of ground surface topography or terrain. It is also widely known as a digital terrain model (DTM). While the term can be used for any representation of terrain as GIS data, it is generally restricted to the use of a raster grid of elevation values. DEM is the simplest form of digital representation of topography. DEMs are used to determine terrain attributes such as elevation at any point, slope and aspect.

➢ Aspect Map:

An aspect map simultaneously shows the aspect or direction wise degree of steepness or slope for a terrain. Aspect categories are symbolized using hues (e.g., red, orange, yellow, etc.)

Applications of aspect map:

- ♣ Farmers seed crops depending on the amount of incoming solar radiation and aspect data.
- ♣ Ecologists study aspect and microclimate for biodiversity.
- ♣ And even recreational planners study slope direction to prevent avalanches.

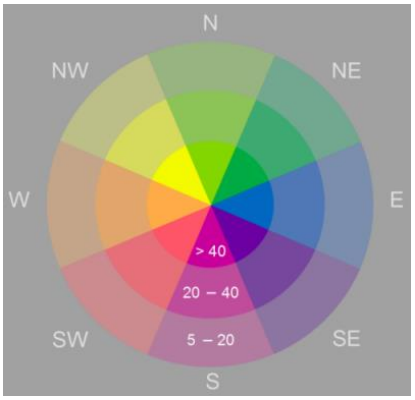


➢ Slope Map:

A slope map is a topographic map showing changes in elevation on a highly detailed level. Architects, landscape designers, and water control planners use a slope map to evaluate a particular site. Detailed data are required to generate one of these maps. Slope is the steepness or the degree of incline of a surface.

➢ Aspect Analysis:

Aspect identifies the downslope direction of the maximum rate of change in value from each pixel 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, represented by a hue (color).



➢ Slope Analysis:

Slope represents the rate of change of elevation for each digital elevation model (DEM) pixel. Slope represents the steepness of the surface and is symbolized into three classes that are shown using color saturation (brightness).

❖ **Link to the get hands-on practice video of Aspect & Slope analysis:**

1. https://www.youtube.com/watch?v=jVtDBN3e5nw
2. https://www.youtube.com/watch?v=B-5RQ9o9EyU
3. https://www.youtube.com/watch?v=ccKoG5cRreY
4. https://www.youtube.com/watch?v=LfKYEy0w-pc
5. https://www.youtube.com/watch?v=jT4dkzo4z18

❖ **Manual Links for Aspect & Slope analysis in QGIS :**

1. https://kingsgeocomputation.org/2016/03/16/aspect-slope-maps-in-qgis/
2. https://docs.qgis.org/3.16/en/docs/training_manual/rasters/terrain_analysis.html
3. https://docs.qgis.org/2.14/en/docs/training_manual/rasters/terrain_analysis.html
4. https://desktop.arcgis.com/en/arcmap/10.3/tools/spatial-analyst-toolbox/how-aspect-works.htm