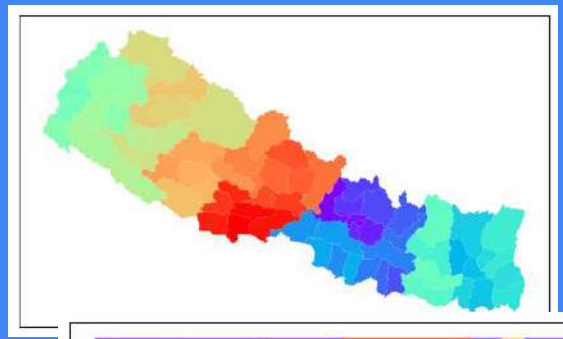
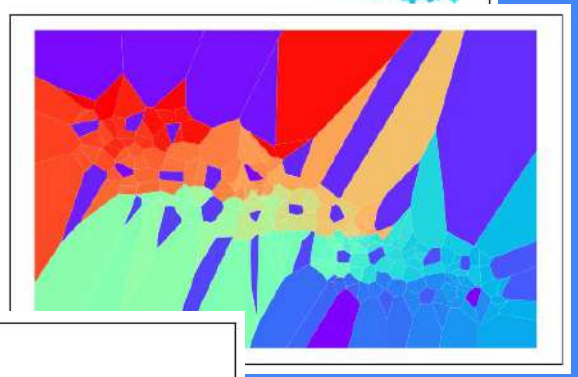
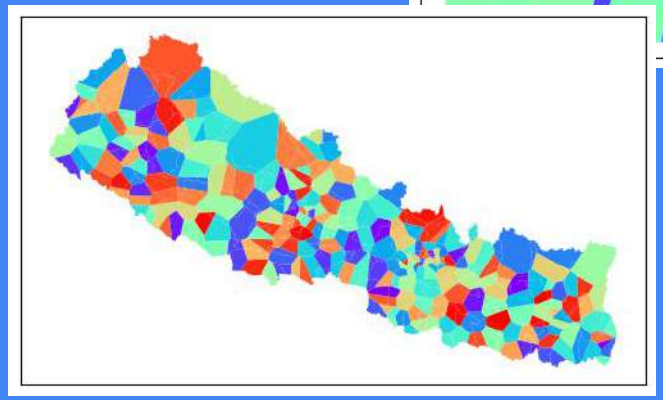
Assigning Weights to Thiessen Polygons

Using GeoPandas







Libraries

Pandas

GeoPandas

matplotlib.pyplot

Data (shp)

Districts

Rainfall Stations

Thiessen Polygons

Methodology

- Import libraries.
- Import data (shp).
- Acquiring the name of the corresponding rainfall station into the attributes table of the polygons.
- Intersecting thiessen polygons with the districts.
- Assign the thiessen weights to the new column.

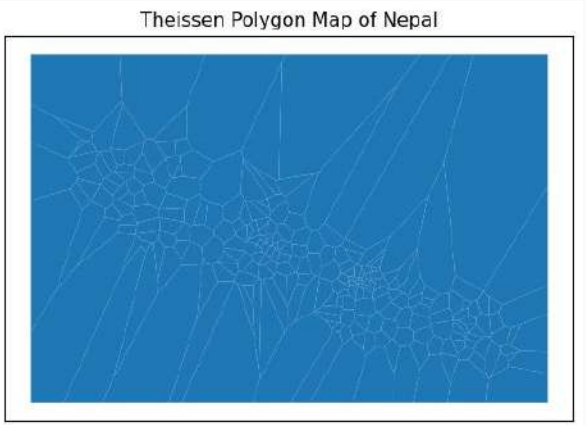
Weight of Thiessen Polygon:

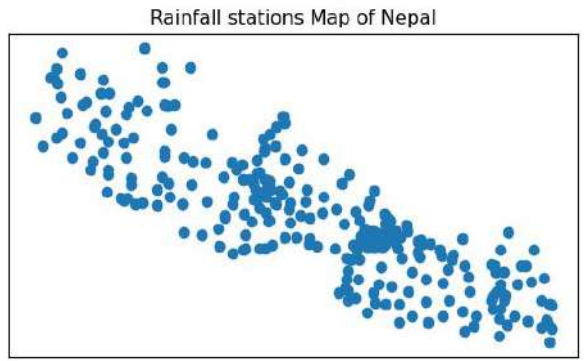
$$Ai/Ac$$

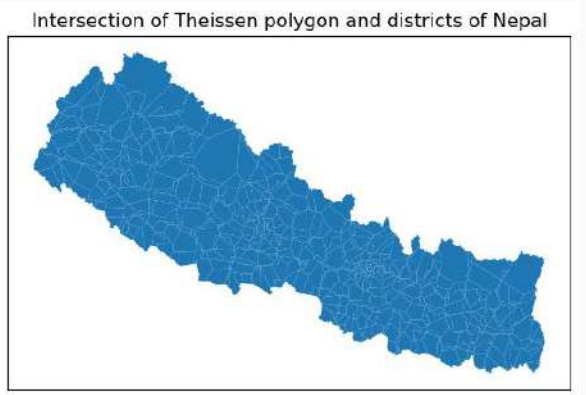
where Ai is the area of the polygon around station and Ac is the total catchment area. The sum of the station weights will always add up to 1.

Output maps

1. District Map
2. Rainfall Stations Map
3. Thiessen polygon Map
4. Thiessen polygon - District intersection map







Thanks!

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The formula for assigning weights to Thiessen polygons is
Ai/Accap A sub i / cap A sub c
Ai/Ac
, where
Aicap A sub i
Ai
is the area of the polygon around station
ii
i
and
Accap A sub c
Ac
is the total catchment area. The sum of the station weights will always add up to 1.