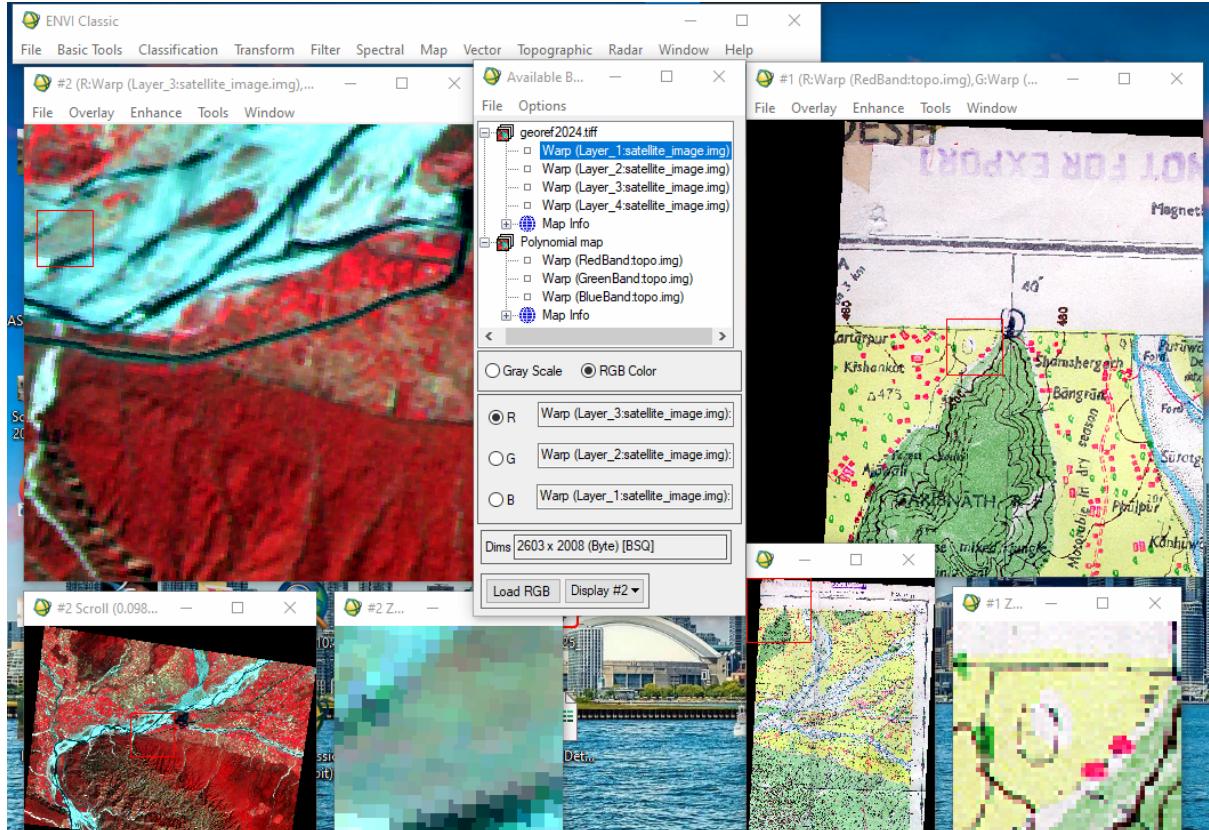


LAB 4 ASSIGNMENT

CE 593 ADVANCED REMOTE SENSING

- 1. Show the GCPs you collected from the base map, indicate the same on the image in the lab report, and order them properly along with the dataset used.**
- 2. Collect as many GCPs as you can, well distributed throughout the image to improve the accuracy of geometric correction.**

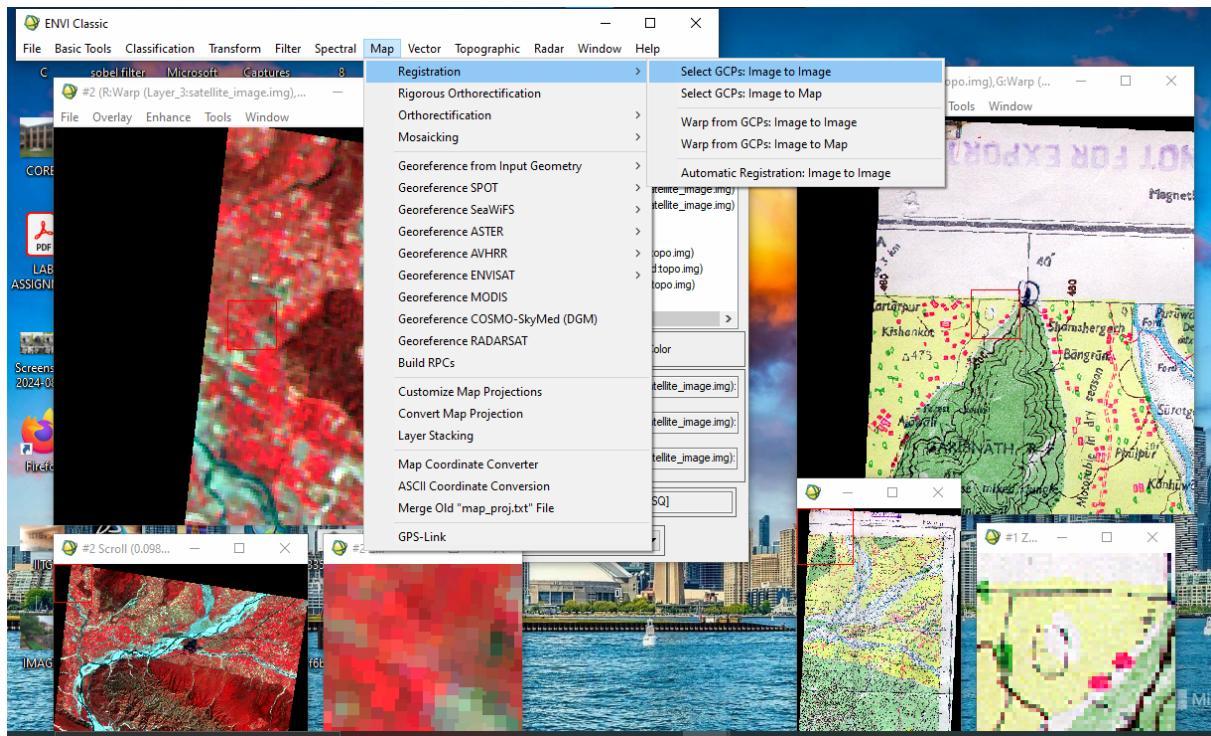


The left side shows a false-colour satellite image and its not georeferenced

The right side displays a georeferenced topographic map with latitude and longitude.

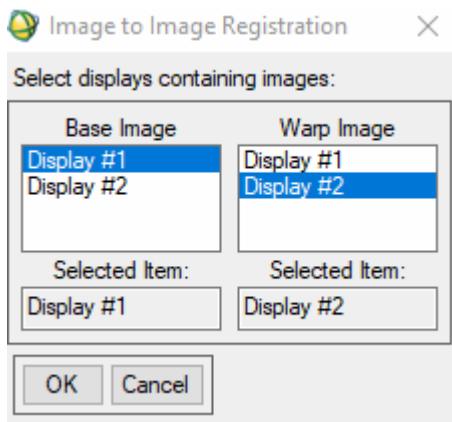
The left side of the satellite image to be georeferenced.

Select GCPs (Ground Control Points):



The options of GCP: Image to Image" or "Select GCPs: Image to Map" are available. Since we have to georeference one image to another image that is already georeferenced **"Select GCPs: Image to image"** option.

Image to image Registration



Base Image and a **Warp Image** for the registration process.

- **Base Image:** The reference image (Display 1), no certain process to be done in the map
- **Warp Image:** (Display 2) Here map will undergo transformations, adding of longitude latitude.

GCP List

Image to Image GCP List

File Options

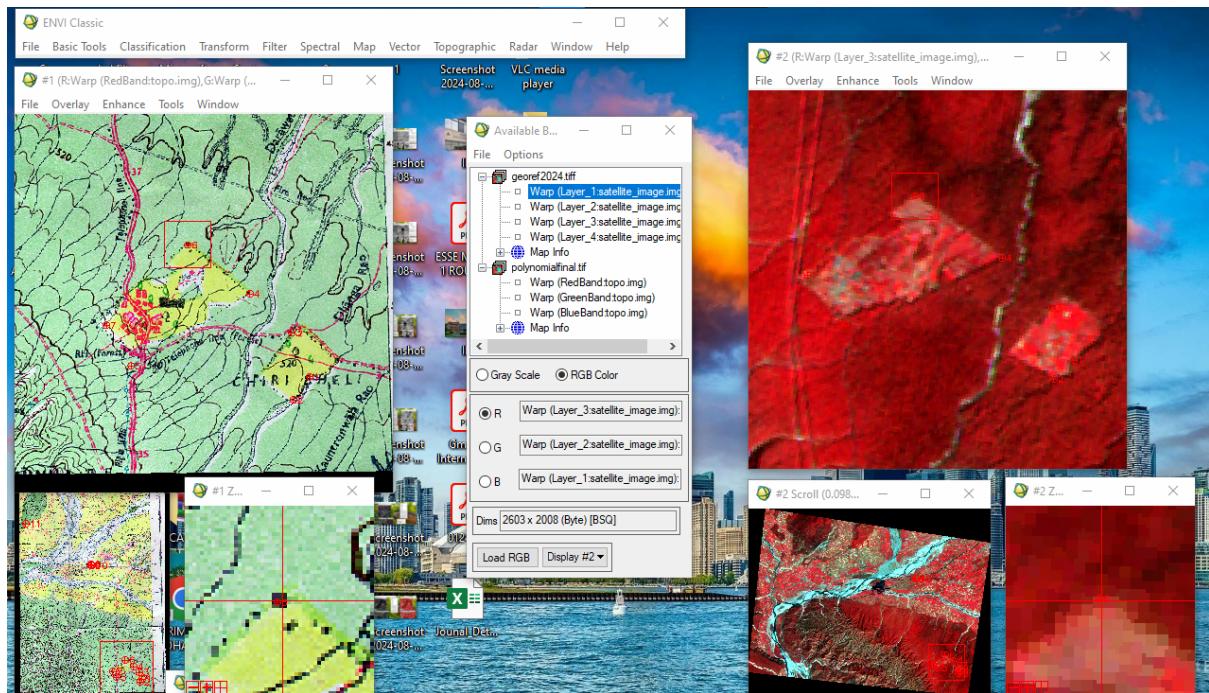
	Base X	Base Y	Warp X	Warp Y	Predict X	Predict Y	Error X	Error Y	RMS
#2+	922.00	1688.00	1196.00	1964.00	1196.3158	1968.8080	0.3158	4.8080	4.8183
#3+	920.00	1617.00	1194.00	1889.00	1194.3267	1887.1137	0.3267	-1.8863	1.9144
#4+	876.00	1576.00	1141.25	1836.00	1136.5486	1834.7607	-4.7014	-1.2393	4.8620
#5+	750.25	1652.25	969.00	1904.75	969.7287	1906.2946	0.7287	1.5446	1.7079
#6+	810.25	1524.50	1049.50	1770.50	1050.0824	1768.0425	0.5824	-2.4575	2.5255
#7+	724.25	1609.25	935.75	1854.75	935.7170	1854.1793	-0.0330	-0.5707	0.5716
#8+	562.75	823.50	726.50	948.25	727.6596	948.4837	1.1596	0.2337	1.1829
#9+	560.75	829.00	724.00	954.00	724.9687	954.5246	0.9687	0.5246	1.1016
#10+	567.00	827.00	734.75	952.25	733.2740	952.7689	-1.4760	0.5189	1.5645
#11+	79.25	520.25	87.50	576.50	87.2977	576.1510	-0.2023	-0.3490	0.4034

Reasons for RMS error

Image Differences: The base and warp images differ in resolution, scale and size

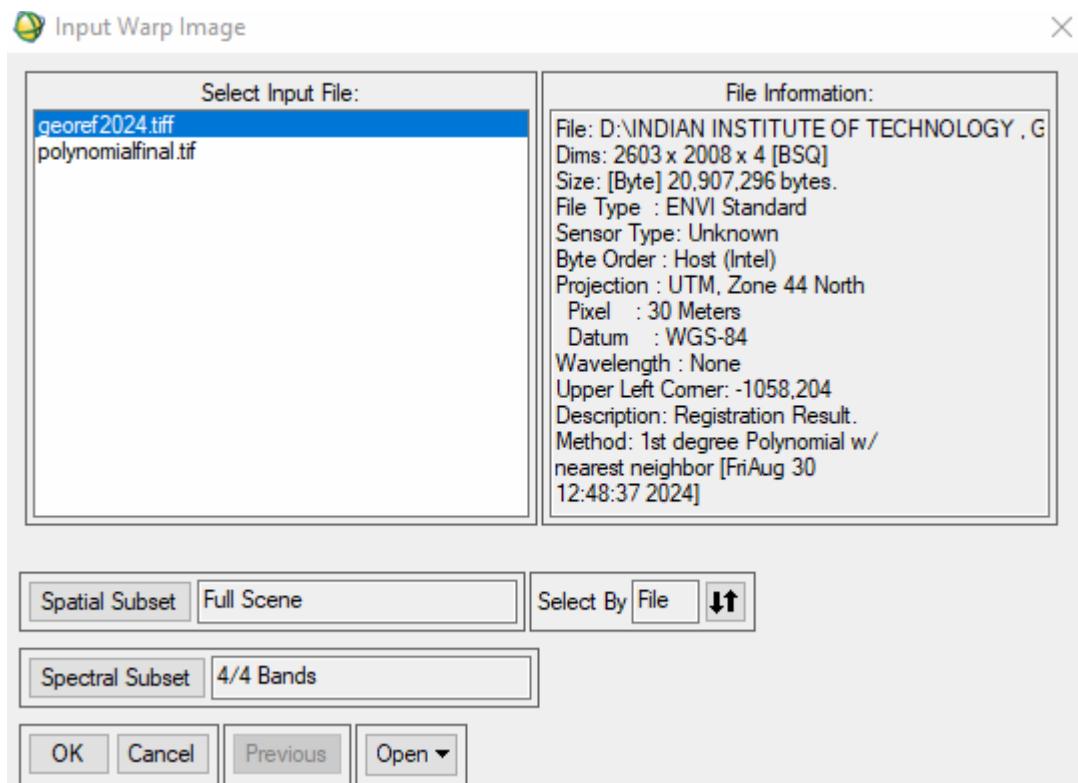
Control Point: Improper pointing of control points in base and warp image will cause error

Number of Control Points: Very less and few distributed points over the map increase errors in unmarked areas.



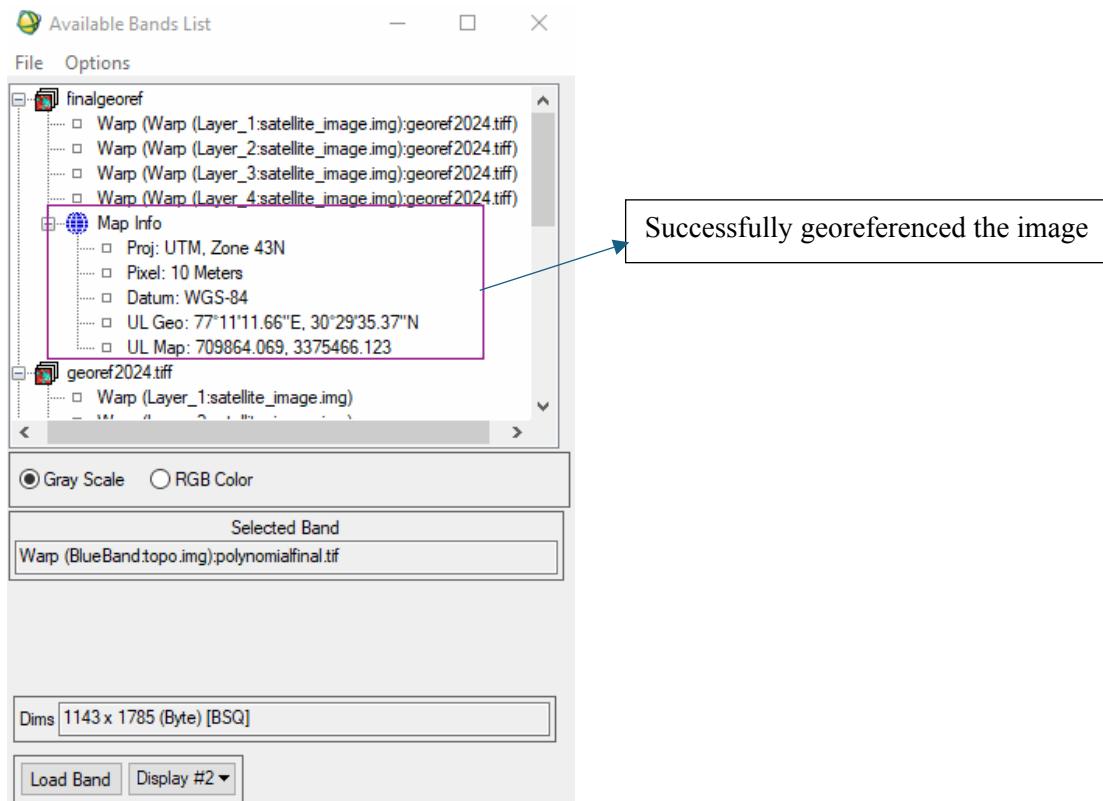
Ground Control Points (GCPs) are selected between two maps by identifying common features, such as road intersections, agricultural lands or river.

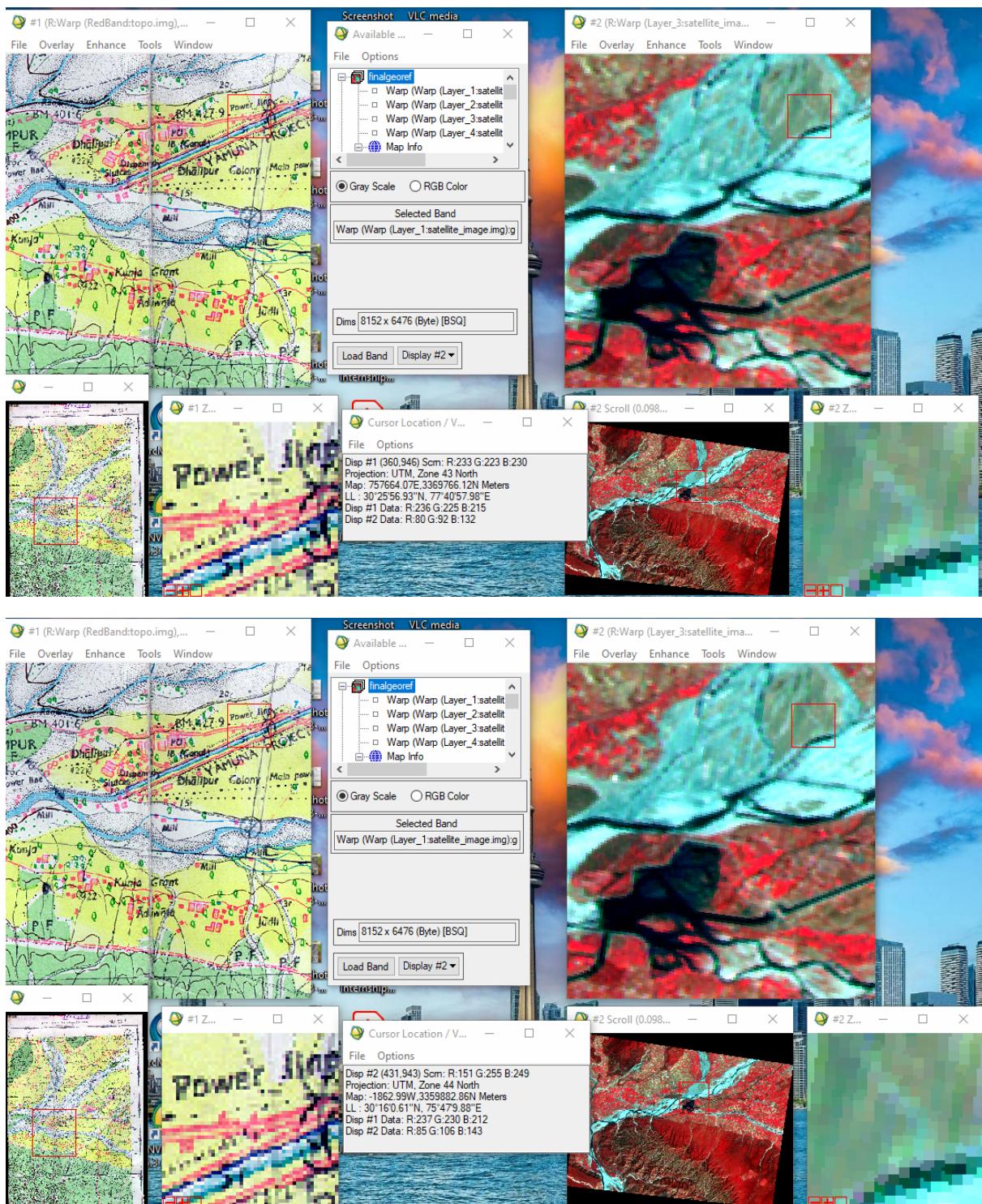
Wrap File



Wrap file to georeference the FCC satellite image map

Result of the Georeference Image





Here it shows the result of map information and cursor location.

In the cursor location information, there are some errors arises between two map due to difference in size between the two maps, different projections, inaccuracy in choosing control points, inaccurate image registration.