

Assignment – 3
Digital Image Processing using MATLAB

Landsat TM Images (Bands 1-7) showing coastal region are enclosed in a ZIP file.

Using the image Processing Toolbox of MATLAB, answer the following.

1. Show the histograms of all the images.
2. Show the scatter plot of Bands 3 versus 4 and comment.
3. Contrast stretch Bands 3 & 4 and comment.
4. For standard FCC, get the pixel value at row=15 and column=45, for all the three bands and comment on the likely feature at that pixel.
5. Produce NDVI image and also show the color bar.
6. Produce Band 5 – Band 4 image.
7. From Band 4 image, approximately estimate the area occupied by water bodies (use spatial resolution of Landsat TM data).

Challenge Questions:

1. Produce standard FCC (already enclosed in the ZIP file).
2. Produce principal component images using six bands data (excluding band 6) and comment about image compression.
3. Produce FCC of first three principal component images.
4. Derive ISH Images
5. Density slice NDVI image and show vegetation in different tones of green color.