

## Contents

- [MATLAB CODE](#)
- [IMAGE INPUTS](#)
- [FINAL OUTPUT](#)

## MATLAB CODE

Code starts

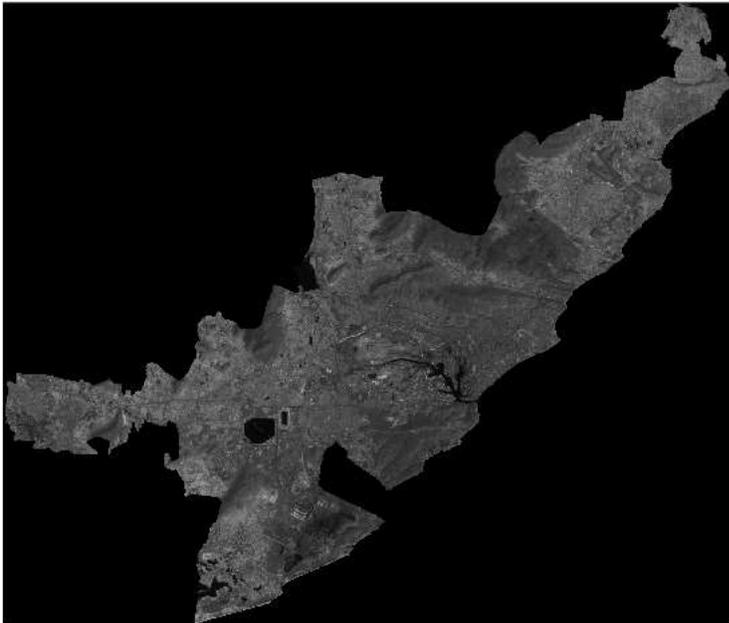
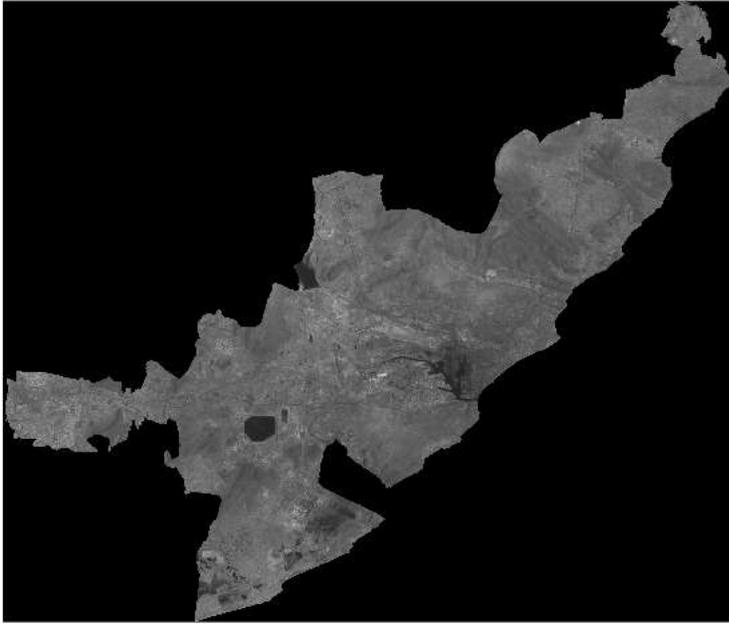
```
clear all;
close all;
clc;
% EACH BAND DIMENSIONS - 1748 x 2058
filename1 = 'BAND2 CLIP.tif';
filename2 = 'BAND3 CLIP.tif';
filename3 = 'BAND4 CLIP.tif';
filename4 = 'BAND5 CLIP.tif';
[x1,map1] = imread(filename1);
[x2,map2] = imread(filename2);
[x3,map3] = imread(filename3);
[x4,map4] = imread(filename4);
QCALMAX = 255;
QCALMIN = 1;
d = 0.99253;
THETA = 72.211650;
l_lambda = zeros(2058,1748,4);
rho = zeros(2058,1748,4);
y = zeros(4);
ndwinir = zeros(2058,1748);
ndwimidir = zeros(2058,1748);
img_final = zeros(2058,1748);
DN(:,:,1) = imread(filename1);
DN(:,:,2) = imread(filename2);
DN(:,:,3) = imread(filename3);
DN(:,:,4) = imread(filename4);
LMAX = [52 47 31.5 7.5];
ESUN = [1842 1547 1044 225.7];
for i=1:1748
    for j=1:2058
        for l=1:4
            l_lambda(i,j,l) = ((LMAX(l)/(QCALMAX-QCALMIN))*(DN(i,j,l)-QCALMIN));
            rho(i,j,l) = (pi*l_lambda(i,j,l)*(d.^2))/(ESUN(l)*cos(THETA));
            y(l) = rho(i,j,l);
        end
        ndwinir(i,j) = (y(1)-y(3))/(y(1)+y(3));
        ndwimidir(i,j) = (y(1)-y(4))/(y(1)+y(4));
        if DN(i,j,1)<170 && DN(i,j,1)>120 && DN(i,j,3)<160 && DN(i,j,3)>120 && ndwimidir(i,j)<0 && ndwimidir(i,j)>-0.3 && ndwinir(i,j)>-0.04887 && ndwinir(i,j)<0.3
            img_final(i,j) = 1;
        end
    end
end
end
```

## IMAGE INPUTS

After processing the above code ,now display all input bands

```
figure('Name','BAND2'),imshow(x1,map1);
figure('Name','BAND3'),imshow(x2,map2);
figure('Name','BAND4'),imshow(x3,map3);
figure('Name','BAND5'),imshow(x4,map4);
```





## FINAL OUTPUT

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Display the output

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```
figure('Name','Output Image'),imshow(img_final);  
% Code ends
```

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