**SOURCE CODE**

im = imread('D:\cloud images dataset\cloud4.jpg');

%im = imread('D:\cloud images dataset\cloud5.jpg');

%im = imread('D:\cloud images dataset\cloud6.jpg');

%im = imread('D:\cloud images dataset\cloud7.jpg');

%im = imread('D:\cloud images dataset\cloud3.jpg');

imshow(im);

cform = makecform('srgb2lab');

lab\_he = applycform(im,cform);

ab = double(lab\_he(:,:,2:3));

nrows = size(ab,1);

ncols = size(ab,2);

ab = reshape(ab,nrows\*ncols,2);

nColors = 3;

% repeat the clustering 3 times to avoid local minima

[cluster\_idx cluster\_center] = kmeans(ab,nColors,'distance','sqEuclidean','Replicates',3);

pixel\_labels = reshape(cluster\_idx,nrows,ncols);

imshow(pixel\_labels,[])

segmented\_images = cell(1,3);

rgb\_label = repmat(pixel\_labels,[1 1 3]);

for k = 1:nColors

color = im;

color(rgb\_label ~= k) = 0;

segmented\_images{k} = color;

end

imshow(segmented\_images{1});

imshow(segmented\_images{2});

imshow(segmented\_images{3});

mean\_cluster\_value = mean(cluster\_center,2);

[tmp, idx] = sort(mean\_cluster\_value);

blue\_cluster\_num = idx(1);

L = lab\_he(:,:,1);

blue\_idx = find(pixel\_labels == blue\_cluster\_num);

L\_blue = L(blue\_idx);

is\_light\_blue = im2bw(L\_blue,graythresh(L\_blue));

nuclei\_labels = repmat(uint8(0),[nrows ncols]);

nuclei\_labels(blue\_idx(is\_light\_blue==false)) = 1;

nuclei\_labels = repmat(nuclei\_labels,[1 1 3]);

blue\_nuclei = im;

blue\_nuclei(nuclei\_labels ~= 1) = 0;

imshow(blue\_nuclei), title('blue clouds');