ABSTRACT

A digital image is an image $f(x,y)$ that has been discretized both in spatial coordinates and brightness. A digital image can be considered a matrix whose row and column indices identify a point in the image and the corresponding matrix element value identifies the gray level at that point. The elements of such a digital array are called image elements, picture elements, pixels or pels.

Image classification deals with the classification of images in response to the user needs. As an illustration, the classifications of image specify the various regions in oceans and identify the various features such as rocks, fishes, weeds, phytoplankton and zooplankton. The popular classification algorithms are Minimum Distance to Means Classification (MDMC) and Parallelepiped Classification (PC).

MDMC method proposes to calculate the distance using Euclidean distance from the point to the mean of all classes and choose the minimum distance. The PC method uses the following decision rule. If the pixel value lies above the lower threshold and below the higher threshold of a class, it is assigned to that class.
In this research various algorithms for image classification based on specific location was developed. By using the algorithms it is possible to classify the oceanographic images and find the resources available in a specific location. This would first capture some sample of oceanographic resources images using the satellite and store it in our system in the form of bitmap image. Each resource images are represented as various classes. Collect the statistics of the image and store it into a file. Next we capture a new oceanographic image. Collect the statistics for the interested region in the image. Analyze the statistics collected in the new region with the already collected statistics for the classes. During the analysis if any match occurs, then that region is assigned to the class it matches.