

ABSTRACT

Rocks are solids made naturally from minerals or mineraloids. In general there are three types of rocks that exist on the surface of the earth, namely igneous rocks, sedimentary rocks, and metamorphic rocks. Each type of rock comes from different formation processes. Various types of sedimentary rock can be seen from the texture of rocks and only geologists who can mengklasifikasinya.

Because the eye also has a level of accuracy in classifying objects, it is necessary to a comparison of experts to strengthen the classification of sedimentary rock types with a relatively short time and high accuracy. In this thesis, the authors conducted a study to design the classification system of sedimentary rock type based on texture. Stages performed in this study include: image acquisition, preprocessing, feature extraction, and classification. The method of feature extraction used is Gray Level Co-occurrence Matrix (GLCM) and K-Nearest Neighbor (KNN) classification method.

In this test 75 images of megaskopis sedimentary rocks, divided into three classes each with the composition of 10 training data and 15 test data per class. In this test also performed on 45 images of microscopic sedimentary rocks are divided into three classes each with the composition of 5 data train and 10 test data per class. Acquired accuracy of 93.33% with computational time 8.3509s using parameters: orientation direction 45 °, quantization level 16, $k = 1$, cosine distance. While using microscopic sedimentary rocks obtained an accuracy of 73.33% with computation time of 5.8204s using parameters: orientation direction 45 °, quantization level 16, $k = 1$, cityblock distance.

Keywords : Sedimentary rocks, Gray Level Co-occurrence Matrix (GLCM), K-Nearest Neighbor (KNN)