ABSTRACT

Recently extreme weather which is unstable is often the case and interfere with daily activities. Based on the current conditions of geothermal, the weather detection becomes crucial matter in the application of several disciplines and human activity. Nowadays, looking for methods to detect weather at one time with image processing is a new innovation that appears in the weather modeling. This case was driven by high demand from various parties for automation and digitalization in detecting weather conditions carefully and accurately without having to observe it directly.

On the research of this final assignment will be designed a detection and classification of weather conditions system based on sky imaging. This detection based on digital image processing uses a camera to capture the image of the sky, through the process of preprocessing for the feature extracted, feature extraction process with morphological methods, and then classifying process using the Linear Discriminant Analysis (LDA).

Classification method used in this final assignment is the LDA, which is expected to be able to recognize the image of the sky and can separates the weather conditions between the sunny, cloudly and rain with an accuracy rate over 80% and has a processing time less than 5 seconds. From the result based on the sky image tested, obtained an accuracy level of 93% and the average of processing time is about 0,944816 seconds. Thus the expected system performance targets have been achieved then it can be a database to help BMKG in weather forecasting at the range of hours by hours.

Key words : weather detection, linear discriminant analysis, image processing, BMKG