

## ABSTRACT

The objective of this study was to determine the plausibility of applying Discriminant Analysis for Land use classification using remotely sensed digital image data. The digital image data covering Koh Chang retrieved from LANDSAT 5-TM acquired on December 22, 2006 was used. A field survey was carried for collecting two groups of sample sets; one was called training area used as basis for classification and the other, called reference data, used for determining the validity of the classification. The supervised classification with Maximum Likelihood, a widely known conventional technique, was implemented along with 3 different types of independent variable; original DN, Indices, and both of previously mentioned. Several types of accuracies; including producer, user and overall, were determined and the Kappa coefficient as well.

The classification was done over the reference data resulted from supervised classification with Maximum Likelihood yielded the highest overall accuracy of 84.93 percent while the classification resulted from Discriminant analysis with three different types of independent variables yielded a little lower ranging between 79.40-80.42 percent. The Kappa coefficient showed the same tendency as overall accuracy with ranging between 0.7501-0.8179. However, the ANOVA indicated non-significantly different between those four different types of implemented classification techniques. In addition, all the outcome resulted from classification using Discriminant analysis were ranked in the class of "substantial."

The accuracy; both producer's and user's accuracies, of determining each land use type was significantly different. In addition, the different classification techniques are best suitable for different types of land use. The supervised classification with Maximum Likelihood was suitable for classifying Crop patch, Port/Beach and Water yielding the highest percentage of user's accuracies of 93.23, 86.56 and 84.86, respectively. The Discriminant functions using both original DN and Indices as independent variables were proper for determining the classes of terrestrial forest, mangrove forest and urbanized area yielding the highest user's accuracy percentages of 85.84 86.71 and 97.28, respectively.