

# VEGETATION MAPPING FOR THREE CROPS IN RED RIVER DELTA, VIETNAM USING MODIS DATA: HYBRID CLASSIFIER APPROACH AND UNCERTAINTY COMPUTATION

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**KEYWORD:** hybrid classifier, uncertainty, segmentation, rule set, probability function.

**Abstract:** Red river delta located in the northern part of Vietnam had quite different historical and ecological characteristics from normal delta in the Southeast Asia. It may be due to embankment built along the major river. Climate regimes in the region have set up the crops during summer, winter and spring seasons. Due to urbanization process, cultivated lands have been lost to give the area for industry zone, for residential area, for transportation etc. More ever, the proportion of land for different vegetation type should be monitored to make the rice production balancing to other type of crop production. For that purpose, the accuracy vegetation mapping would be needed. Hybrid classifier and uncertainty computation are applied to make vegetation maps for three seasons. The procedure is as follows:

- Consideration the rule set for segmentation;
- Modification the rule set for segmentation in adjusting to real world;
- Artifact Neural Network classification method is used to get the priority classification result;
- Uncertainty computation for priority classification result;
- Classification based on decision tree incorporated uncertainty result to get later result;
- Accuracy assessment by comparisons between priority classification result with later result;
- Discussion.

The classification result based on decision tree incorporated uncertainty would be improved and looked better than other result. MODIS time series data is valuable for monitoring purpose in this region.