

Comparison of Pixel Based and Object Oriented Classifications in Land Cover Mapping in the Red River Delta - Example of Duy Tien District, Ha Nam Province, Vietnam

Van Cu Pham, Thi Thuy Hang Nguyen and Phan Dong Nguyen, Viet Nam

Keywords: Cartography; Geoinformation/GI; land cover change; spectral confusion; pixel based; object oriented classification

ABSTRACT

The land use practice in the Red River Delta is characterized by its mosaic spatial repartition and rapid land cover change. Red River Delta is an important rice producer of Vietnam where is living more than 20% of Vietnamese population. In this context, the land use mapping conducted periodically by the Land Administration Agencies cannot satisfy land management needs at local scale as it is required at Duy Tien District level. Classifications of satellite image are used in this case study as an alternative to fill up information gap in the period between land survey operations. The image data used in our study is SPOT 4 scene acquired on November 2007. Due to their similar spectral nature and their size bigger than spatial resolution of SPOT4 (pixel size of 20m), different land cover types can easily be classified in confusion with each other. We applied two different methods, namely pixel based method (statistical approach) and cognitive method (object oriented approach), of classification for the same image set to compare their effectiveness and to reduce the spectral confusion of land cover types in Duy Tien. For Object oriented classification we have used the ancillary information we have collected from the field observation and statistic data provided by the Service of natural resources and environment of Duy Tien District. The results show that object oriented method can be used effectively in such land use context as in Duy Tien and consequently can be replicable for huge territory of the Red River Delta where the land use practice is quite similar to that of Duy Tien.

CONTACT

Prof. Van Cu Pham
International Centre for Advanced Research on Global Change ICARGC
Vietnam National University
Hanoi
VIET NAM
Email: pvchanoi@vnn.vn