Monitoring Land-Cover Changes Using Multi-Temporal Sentinel-1 Data in U Minh Thuong National Park

Do Thi Hoai and Le Minh Hang (Vietnam)

Key words: Remote sensing; decision tree classification, multi-temporal SAR, changed/unchanged objects

SUMMARY

U Minh Thuong National Park is a typical wetland ecosystem in Vietnam. In recently, U Minh Thuong National Park is under pressured to develope economic and protect the forests. According to the ability to observe wide areas and continuous, satellite images are currently the main remote sensing data for monitoring and management of natural resources, especially in monitoring the changes of land cover. SAR (Synthetic Aperture Radar) data, uneffected by the weather, day and night, is being used for environmental management. Sentinel-1 satellite images provided by the European Space Agency is SAR data, with C-band, 12-days a period and free of charge. The changes of land cover object correlate to backscatter values in the time-series of Sentinel-1 data. In this article, the authors proposed to determine land cover objects based on the changes of backscatter values of multi-temporal Sentinel-1. The classification result is assessed by current land use mapping with overall accuracy archieved 85%. In particular, the classification accuracy of built-up land and paddy rice had high accuracy such as 90% and 83%, respectively. According to the results, multi-temporal Sentinel-1 data is helpful for monitoring natural environment.