USING MULTIPLE-TIME SATELLITE IMAGES TO DETECT EARLY FOREST LOSS IN DAK SONG DISTRICT, DAK NONG PROVINCE

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Summary

Nowadays, GIS and remote sensing technology can be applied in forestry to detect quickly and accurately changes in forest area and deforestation. Recently, Dak Song district of Dak Nong province has a great loss of forest, the area of forest loss according to statistics from 2008 to 2014 up to 10,746.68 hectares of forest. On average, the area lost up to 1,535.24 ha. The research results showed that the most suitable remote sensing images for detecting forest loss is SPOT 5, SPOT 6, Sentinel 2 and Landsat 8. The remaining image data, they are low resolution or high price, so they are not appropriate for early detecting forest loss at the local level. Research has shown that the difference in color index is most pronounced between forested and non-forested areas based on spectral values of two images taken at two different times. In which, comparative index for detecting deforestation is called as the relative difference in color between two images (S_{NDVI}). Based on this index we can determine the loss of forest from different image materials (may not be the same type of photo) and do not depend on the shooting season and time. S_{NDVI} in the forest area is often greater than 1, but that is less than 1 in the non-forest area. Meanwhile, SSBright is often bigger or smaller than 1.5. The suitable window width index for detecting forest loss is 40 m, when the average variation of bands is almost negligible. At that time, S_{NDVI} of image 1 greater than 1.1 and S_{NDVI} of image 2 is smaller than 0.9 and SSBright is greater than 1.5. Therefore, this is the most appropriate threshold for detecting deforestation. The accuracy of the forest loss detection by using image interpretation keys was 90%. Research results have also shown that forest loss areas, which are more than 2 ha, are unmistakable or less confusing.

Keywords: *Satellite image, forest loss detection index, S_{NDVI}, window width.*