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Vegetation analysis based on pleiades images at UMK agropark

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Abstract

Forests are important in ecosystems for sustaining biodiversity, environmental and human services worldwide. In a developing country of South-East Asia have confronted the serious problem such as forests degradation due to socioeconomic and socio-politics. Much research on the vegetation of forest area and its deforestation, reforestation, and dynamics have been performed in some parts of the world. The factors of the changes in forest tree in the degradation areas due to the anthropogenic activities. Forest vicinity supposed effortlessly measurable indicator for sustain and its changes is a vital where management of natural sources can be handled in larger areas. The analysis of vegetation based on forest canopy density is a primary aspect in evaluating the status of the forest. It is also an essential indicator for feasible management involvement. Fragmentation of the forests brings out the effect of the various stressing factors on the spatial extent of the forests particularly the inappropriate application that increasing population and industrialization, which has constantly affected the forested

regions in the form of deforestation for conversion of forest land for cultivation purposes and business purposes. Hence, there is a need for spatial assessment and continuous monitoring of the forested regions. So, it is very crucial to analyse the vegetation at Universiti Malaysia Kelantan (UMK) Agropark based on Forest Canopy Density (FCD) to assess the quality of the forest. It is feasible that there is no changes in forest area but the forest canopy density is changed. The research was conducted in UMK Agropark, Jeli, where the study area covers about 462010.53 m^2. During this study, the methodology involved is a radiometric correction, reclassified, and parameters such as Advanced Vegetation Index (AVI), Bare Soil Index (BSI) and Canopy Shadow Index (SI) are used to study vegetation of forest area based on FCD and lastly correlation coefficient analysis. Pleiades image in 2018, is first formalized and then utilized in ENVI and ArcGIS 10.2 software to calculate FCD. The final results of the area consist of 29.12% very dense vegetation, 28.59% moderately dense vegetation, 16.50% low dense vegetation, 7.36% shrub and 6.74% bare soil. The highest value of r^2 among three graphs was $r^2 = 0.93$ which was graph scatter plots, FCD versus SI, which means that about 93% of the variation can be explained. This method is beneficial to discover and estimate the vegetation of forest area based on forest canopy density over large place in a time and cost high-quality manner.

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Pleiades; UMK Agropark; Vegetation analysis

Indexed keywords

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