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Deforestation trends and forest transitions in tropical landscapes

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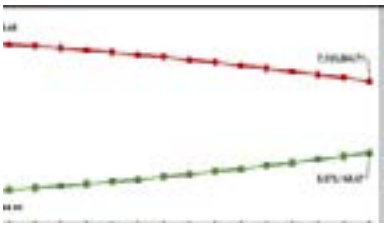
Tropical rainforests are some of the wealthiest home to probably 50 percent of the world's terrestrial species and also helps to maintain the climate by regulating atmospheric gases and stabilizing rainfall, protecting against desertification and providing numerous other ecological functions. Unfortunately, prospects for tropical forests are becoming increasingly bleak owing to unabated deforestation and forest alteration that stem from human activities such as logging, hunting, agricultural expansion and human settlement. Many drivers of land cover change left traceable footprints in their wake, which can be observed from satellite imagery. An essential concept for trends in deforestation is the forest transitions, a well-established pattern of how deforestation in region increases, then decreases, and finally to reforestation over the course of time. For showing the yearly land cover and land cover changes over time, as a case study in East Kalimantan Province (Indonesia), we produced yearly land cover maps from 2000 to 2016 using Landsat imageries interpreted visually and then analyzed land cover changes during 17 years, including a total of forest cover over time. In this study, we analyzed annual deforestation trends and estimated the forest transitions during 17 years. Our results indicated forest loss especially in the natural forest, was caused by decreasing of forest quality, i.e. changes from primary to secondary forest, from secondary forest to shrubland, etc. Forest gain was only seen in plantation forest that was changed from primary and secondary dryland forest.



Recent Publications

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Biography

Kiswanto is a Lecturer in Forestry Faculty of Mulawarman University, Indonesia. Since 2015, he is taking PhD course at the Graduate School of Agricultural and Life Sciences, the University of Tokyo, Japan under supervision of Associate Professor Satoshi Tsuyuki, PhD. His research topic is the silvicultural strategies of landscape restoration for reducing GHG emissions from deforestation and forest degradation in East Kalimantan Province, Indonesia. During this PhD research work, he produced yearly land cover maps from 2000-2016 using Landsat interpreted visually and analyzed land cover changes over time, to monitor deforestation trends and forest transitions, estimate GHG emissions from deforestation and forest degradation, and formulate the silvicultural strategies of landscape restoration.

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