Monitoring of deforestation rate and trend in Sabah between 1990 and 2008 using multitemporal landsat data

Abstract

Deforestation is a major and very critical problem faced by many tropical countries including Malaysia. Sabah is the second largest state in Malaysia and its deforestation rate has been accelerating. This study was conducted to monitor the deforestation in Sabah in the last two decades with Landsat images of 1990, 2000 and 2008. Supervised classification with maximum likelihood algorithm was conducted using the Landsat data for monitoring deforestation. In total, between 1990 and 2008, Sabah lost half of its intact forest, or more than 1.85 million ha in less than two decades. Overall, the deforestation rate for all forest types combined for the last two decades was 1.6% per year. Deforestation seemed to be accelerating because the deforestation rate between 1990 and 2000 was 0.9% per year and it had increased to 2.7% per year between 2000 and 2008. The deforestation trend seemed to follow a negative exponential from 1990 to 2008. In contrast, the agricultural areas increased rapidly with a total of increment more than 1 million ha. This confirmed that agriculture especially establishment of commercial plantation was the major factor of deforestation in Sabah for the last two decades.