Quantification of global gross forest cover loss

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Themes

Summary

A globally consistent methodology using satellite imagery was implemented to quantify gross forest cover loss (GFCL) from 2000 to 2005 and to compare GFCL among biomes, continents, and countries. GFCL is defined as the area of forest cover removed because of any disturbance, including...
both natural and human-induced causes. GFCL was estimated to be 1,011,000 km² from 2000 to 2005, representing 3.1% (0.6% per year) of the year 2000 estimated total forest area of 32,688,000 km². The boreal biome experienced the largest area of GFCL, followed by the humid tropical, dry tropical, and temperate biomes. GFCL expressed as the proportion of year 2000 forest cover was highest in the boreal biome and lowest in the humid tropics. Among continents, North America had the largest total area and largest proportion of year 2000 GFCL. At national scales, Brazil experienced the largest area of GFCL over the study period, 165,000 km², followed by Canada at 160,000 km². Of the countries with >1,000,000 km² of forest cover, the United States exhibited the greatest proportional GFCL and the Democratic Republic of Congo the least. Our results illustrate a pervasive global GFCL dynamic. However, GFCL represents only one component of net change, and the processes driving GFCL and rates of recovery from GFCL differ regionally. For example, the majority of estimated GFCL for the boreal biome is due to a naturally induced fire dynamic. To fully characterize global forest change dynamics, remote sensing efforts must extend beyond estimating GFCL to identify proximate causes of forest cover loss and to estimate recovery rates from GFCL.

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