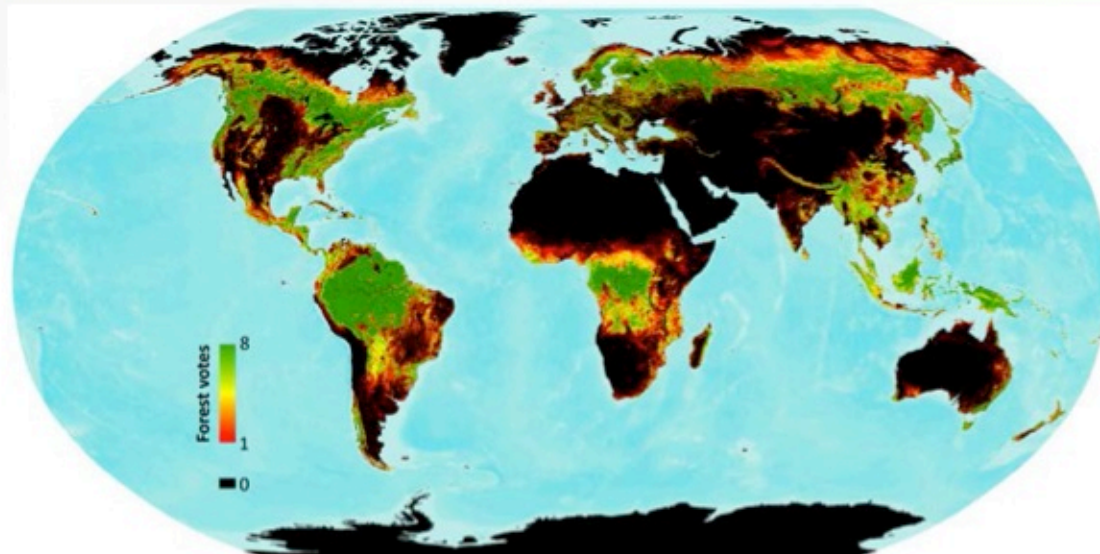


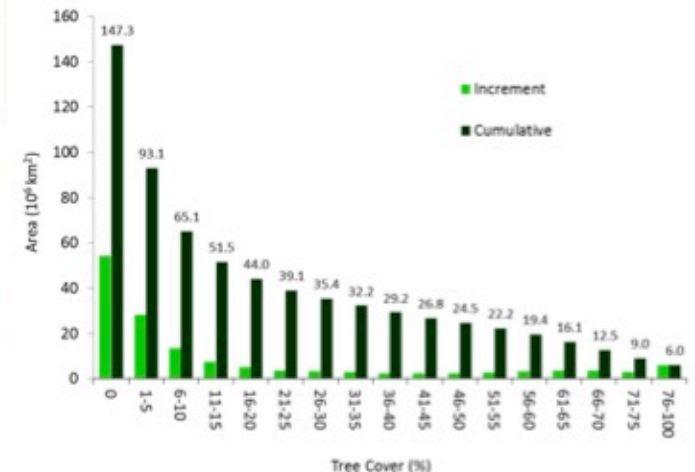
Conservation Policy and the Measurement of Forests

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NASA-funded researchers analyzed Landsat and MODIS global land cover datasets, among others, to show that the major reason underlying the uncertainty over the amount and distribution of forests worldwide is ambiguity in the term “forest”. Previous satellite-based estimates of global forest area range from $32.1 \times 10^6 \text{ km}^2$ to $41.4 \times 10^6 \text{ km}^2$. Each of the >800 official definitions of forest that are capable of satellite measurement relies on a criterion of percentage tree cover. This criterion may range from >10% to >30% cover under the United Nations Framework Convention on Climate Change. Applying the range to the first global, high-resolution map of percent tree cover reveals a discrepancy of $19.3 \times 10^6 \text{ km}^2$, some 13% of Earth’s land area. The discrepancy within the tropics alone involves a difference of 45.2 Gt C of biomass valued at US\$1 trillion. Forests are the focus of efforts to mitigate negative ecological and social impacts of land-use change, e.g., in relation to Reducing carbon dioxide Emissions from Deforestation and forest Degradation (REDD+). To more effectively link science and policy to ecosystems, we must now refine the focus of monitoring, reporting, and verification toward ecological measurements that are more directly relevant to ecosystem function, to biomass and carbon, and to climate and biodiversity.



Global distribution of consensus among eight satellite-based data sets on the presence or absence of forest in the year 2000. Larger values (in green) show agreement on the presence of forest. Conversely, values near zero (in red and black) show agreement on its absence. Yellow values are maximum disagreement over both the presence or absence of forest.



Global area of forest cover as a function of the tree-cover criterion. Incremental values represent global area ($\times 10^6 \text{ km}^2$) within each bin, and cumulative values refer to the global area with tree-cover values greater than or equal to that of the bin.