

Scientists Study True Colors of Amazon Rainforests

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Using NASA satellite data, Boston University scientist Ranga Myneni studied the amount and dynamics of green leaf area of Amazon rainforests. The study found a 25 percent increase in leaf area during the dry season when skies are relatively clear demonstrating that the forests are not evergreen and are more dependent on light than rain. The greener forests gradually humidify the atmosphere helping to trigger the onset of the wet season.

NASA satellites reveal that Amazon forests are neither evergreen nor dependent on constant rain, and are capable of manufacturing their seasons.

Researchers report a 25 percent increase in the amount of green leaf area during the dry season when the skies are relatively clear. They found that the rainforests are more dependent on light than rain, enduring several months of dry season by tapping water deep in the soil with their long roots.

The results of this NASA-funded research will appear in the March 20 issue of the *Proceedings of the National Academy of Sciences*.

"Our finding is similar to the discovery of a large green continent, nearly a third the size of South America, appearing and disappearing each year," explained Ranga Myneni, professor of geography and environment at Boston University, the lead author of this study. "This has very important consequences for weather, atmospheric carbon, water and nutrient cycling, given that leaves are the air purifiers and food factories of our planet," Myneni added.

The Amazon rainforest covers an area equivalent to more than half of the continental United States and is home to more than one-third of all living species on Earth.

Scientists used satellite images to study the amount and dynamics of green leaf area of Amazon rainforests. This study was made possible by more than five years of daily estimates of leaf area over the entire Amazon basin at one-kilometer resolution with the Moderate Resolution Imaging Spectroradiometer aboard the NASA Terra satellite, by a team of 27 individuals from 15 different institutions.

The researchers report that the rainforests sprout new leaves in

anticipation of the coming dry season. The greener forests capture more sunlight, absorb more carbon dioxide and evaporate more water during the dry season compared to the wet season. By gradually humidifying the atmosphere, the forests play an integral role in the onset of the wet season, scientists observed.

"This work is an important outcome of over 10 years of NASA's investments and teamwork to develop, build and launch state-of-the art sensors and processing algorithms enabling the discovery of hitherto unknown vegetation dynamics on Earth, added Rama Nemani, a co-author of the paper at NASA Ames Research Center, Moffett Field, Calif.

Source: Boston University

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