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Title: VALIDATING, SCALING AND PARAMETERIZING A FOREST REGROWTH MODEL FOR THE AMAZON REGION USING AIRCRAFT AND SPACEBORNE SENSORS AND GIS

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Abstract

Developing an ability to predict forest regrowth potential has considerable implications for our understanding of carbon dynamics in a future characterized by increased conversion of old-growth Amazonian forests and the subsequent abandonment of many areas originally cleared for agricultural activities. We will present a four-step, incremental approach directed toward the spatially explicit modeling and mapping of forest regrowth potential for the Amazon region. Each of the four steps will make a significant contribution to current understanding of the response of ecosystems to disturbance at the regional scale. A central focus of our approach is the development of remote sensing approaches for quantifying vegetation recovery and changes in biomass following disturbance, determination of the optimal scale for these approaches, and testing of disturbance-specific parameters that may influence rates of forest regrowth in Amazonia. An outline of our four incremental steps is provided:

1. production of preliminary forest regrowth potential maps for the region using an empirical model of biomass accumulation in global secondary forests.
2. definition of a set of normalized spectral indices of forest regrowth optimized for the Amazon region.
3. testing of the reliability of the preliminary maps (Step 1 product) and the remote sensing indices of regrowth structure (Step 2 products).
4. refinement of the global model to enhance its regional applicability by including known disturbance-specific parameters shown to explain a significant amount of variance between measured and modeled regrowth biomass and structure.

Our poster will provide details on this project and preliminary results of our multi-temporal Landsat analysis.

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