Nitrogen fluxes in the forests of the Congo Basin

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The tropical forest of the Congo basin remains very poorly investigated and understood; mainly because of logistic, political and research capacity constraints. Nevertheless, characterization and monitoring of fundamental processes in this biome is vital to understand future responses and to correctly parameterize Earth system models. Nutrient fluxes are key in these processes for the functioning of tropical forests, since CO_2 uptake by terrestrial ecosystems strongly depends on site fertility, i.e. nutrient availability. Accurate projections of future net forest growth and terrestrial CO_2 uptake thus necessitate an improved understanding on nutrient cycles and how these are coupled to the carbon (C) cycle in forests. Research in the Congo Basin region should combine assessments of both carbon fluxes and the underlying nutrient cycles which directly impact the forest productivity. We set up a monitoring network for nitrogen fluxes in four different forest types in the Congo Basin, resulting in a unique and integrate dataset. The questions to be answered: How do the N-budgets of four different forest types in the Congo Basin compare? How do these fluxes compare to fluxes in the Amazon forest? What is the influence from the strong slash-and-burn regimes on the N-cycle in the natural forests? We answer these questions with our empirical dataset of one hydrological year, combined with satellite and modeling data.