Nitrogen dynamics in small rivers of southeast Brazil

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In this study we evaluate the export of N by comparing pristine small watersheds located in the Atlantic forest and in the Cerrado (tropical savanna) of the State of São Paulo, southeast region of Brazil. In order to fully interpret the N distribution in the aquatic systems we also investigate the internal terrestrial processes that control the N dynamics, such as, soil C:N ratio, soil mineralization and nitrification rates, foliar and litterfall N concentration, and nitrogen stable isotopic composition.

We established two study sites in relatively unpolluted areas of Atlantic forest under two different physiognomies (Ombrophilus Dense and Semi Deciduous forests) and one in savanna (Cerrado) at state parks of the State of São Paulo, Brazil

Based on N concentration in stream water we can infer that Ombrophilus Forest under Cambisols, with higher values of mineralization and nitrification rates and higher soil clay content are less N limited than Semi Deciduous Forest and savanna under Latosols, which presented the lowest mineralization and nitrification rates and soil clay contents. The main exported form of N to streams with less N limitation was DIN, and the main form exported at N-limited areas was DON. Results from isotopes analyses in soil, leaves and litterfall also confirm this limitation with more variable and depleted values found at savanna site.