

ID do Resumo: 399

Throughfall Reduction: Impacts on solution nutrient fluxes.

Daniel Markewitz, The University of Georgia, dmarke@warnell.uga.edu
(Apresentador)

Ricardo de O Figueiredo, Embrapa, ricfig@uga.edu

Eric A Davidson, The Woods Hole Research Center, edavidson@whrc.org

Daniel C Nepstad, The Woods Hole Research Center, dnepstad@whrc.org

Maria B Rosa, The University of Georgia, mbeatrizrosa@hotmail.com

Gilvane Portela, IPAM, gilvane.a.p@bol.com.br

Wanderley R da Silva, IPAM, wanderbio@bol.com.br

E. Nelson de A Xabregas, IPAM, nelson@bol.com.br

A throughfall reduction experiment was conducted in the Tapajós National Forest, Santarém, Brazil. The present research focused on solution fluxes and if biogeochemical processes were altered beyond those expected from simple concentration effects due to water removal. Two 1-ha plots were selected and throughfall partially excluded (~50%) from the treatment plot. Rainfall, throughfall, litter leachate and soil water at 25 and 200 cm were collected through six years including one pre- and post-treatment years. Despite declines in leaf area in the exclusion plot during years 2-4 no response was detected in throughfall concentrations. In contrast, $\text{NO}_3\text{-N}$ increased in litter leachate during year 2-4 but returned to the control concentration during the post exclusion year. A similar response was observed for Ca in litter leachate. Mineral soil solutions at 25 and 200 cm did not demonstrate clear patterns partly due to a limitation in solution collections during exclusion. During year 1 of exclusion there was a slight elevation in $\text{NO}_3\text{-N}$ and Ca in mineral soils that was obscured by small sample sizes during the following years. Post-exclusion there was an increase in $\text{NO}_3\text{-N}$ at 25 cm. This pattern was not present for Ca suggesting the response was not simply an evapoconcentration effect. Fluxes of nutrients during the calibration year were consistent with other Amazonian forests, such as a throughfall flux of 5.8 kg N ha^{-1} in the control. No change in throughfall flux was apparent during the experiment. In the litter layer, fluxes ranged from 3 to $19 \text{ kg-NO}_3\text{-N ha}^{-1} \text{ yr}^{-1}$ across both plots. In the treatment plot only a small reduction in $\text{NO}_3\text{-N}$ flux was observed during exclusion (~15%). Ca flux declines were similar to declines in solution flux (i.e., 40-50 %). This may indicate that N mineralization was sustained within the litter layer and subsequently leached, while decomposition of cell wall structures was slowed and Ca retained. In either case, it appears that in the first year post exclusion solution fluxes in the treatment plot increased toward those observed in the control plot.

Sessão: Biogeoquímica - Ciclagem de nutrientes em ecossistemas e agroecossistemas florestais e de cerrado.

Tipo de Apresentação: Oral