

[Fechar Janela](#)**ID do Resumo:** 277**Long-term manipulation of soil moisture availability alters ecosystem processes in eastern Amazonian forest regrowth, Brazil****Steel Silva Vasconcelos**, Embrapa Amazônia Oriental, steel@cpatu.embrapa.br
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To examine the role of altered soil moisture availability on forest ecosystem processes, we have irrigated a regrowth forest stand (four 20 x 20 m plots) in eastern Amazonia, Brazil, since 2001. Irrigation is applied during the dry season, in the late afternoon, at a rate of 5 mm day⁻¹, corresponding to regional estimates of daily evapotranspiration. This long-term, stand-level resource manipulative experiment demonstrated moisture limitations to carbon dynamics associated with above and belowground ecosystem processes. Aboveground (litterfall quantity and quality, litter decomposition, and stem growth) and belowground (soil carbon dioxide efflux and fine root production) processes showed marked intrannual variation associated with rainfall seasonality. Soil carbon dioxide (CO₂) efflux and litter decomposition rates were strongly linked to moisture availability as indicated from their responses to rainfall seasonality and dry-season irrigation; differential decomposition rates among tree species were linked to leaf chemical and physical properties. Soil CO₂ efflux, leaf litter decomposition, and fine root production for irrigated plots were higher than for control plots during the dry-season irrigation. Tree growth was sensitive to variation in soil moisture as indicated by the response of stem diameter increment to seasonal rainfall and dry-season irrigation. Aboveground net primary productivity (ANPP) — an index that integrates resource effects on ecosystem processes — was constrained by moisture availability as indicated by the response of wood increment to interannual variation in dry season rainfall and to irrigation. Reduced ANPP associated with moisture availability suggests decreased potential of carbon sequestration from forest regrowth under anticipated scenarios of reduced rainfall in Amazonia.

Sessão: Carbono - O papel da sazonalidade no balanço de água e carbono.**Tipo de Apresentação:** Poster[Fechar Janela](#)