



## **Recovery of energy, water and carbon exchange in degraded forests in eastern Amazonia**

Susan Trumbore (1), Paulo Brando (2), Claudinei Oliveira dos Santos (3), Divino Silvério (3), and Michael Coe (2)

(1) Max-Planck Institute for Biogeochemistry, Biogeochemical Processes, Jena, Germany (trumbore@bgc-jena.mpg.de), (2) Woods Hole Research Center, Woods Hole, MA, USA (pbrando@whrc.org, mtcoe@whrc.org), (3) IPAM Instituto de Pesquisa Ambiental da Amazônia, Canarana, MT, Brasil (claudineisantosnx@gmail.com, divino.silverio@ipam.org.br)

Large regions in the state of Mato Grosso in Brazil have been deforested and converted to pasture and soy agriculture. In addition to deforestation, remnant forests in the region are degraded by repeated fire and edge related effects. We are combining eddy covariance with other measures to study the impact of these changes in land cover on energy, water and carbon balance, in a region that sits at the ecotone between continuous forest and savanna. The degraded forest plot is part of a multi-year experimental fire treatment and had experienced large-scale mortality in the years prior to tower installation. Leaf area was strongly reduced in degraded forest, but surprisingly latent energy fluxes nearly equaled those in the intact forest. Carbon uptake rates in the intact forest exceeded those in the degraded forest, though not when expressed on a leaf-area basis. Overall, these results corroborate those found in experimentally logged tropical forest showing rapid recovery of fluxes, despite losses of biomass. Compared to both forests, the soy field reflected more incoming energy, and lost a greater proportion of absorbed radiation as sensible rather than latent heat.