5) **POSTER**
Carbon Budgets at the Stand Scale in Amazonia

Long term measurements of carbon dioxide, water and energy combined with the fetch analysis in central Amazonia.

Araujo, Alejandro. C. de[1], Nobre, A. D.[1], Kruijt, B.[2], Dallarosa, R. G.[1], Von Randow, C.[3],
Manzi, A., Xavier, H. B.[1], A. O.[3], Dolman, A. J.[4], Waterloo, M. J.[4], Evans, J. G.[5], Gash, J. H.C.[5], Hodnett, M. G.[5], Pacheco, V. B.[1], Kabat, P.[2]
[1]Instituto Nacional de Pesquisas da Amazônia - INPA, Manaus, Brazil
[2]Alterra, Wageningen University, The Netherlands
[3]Centro de Previsão do Tempo e Estudos Climáticos – CPTEC, São Paulo, Brazil
[4]Vrije University, Amsterdam, The Netherlands
[5]Centre for Ecology and Hydrology – CEH, Wallingford, United Kingdom
Av. André Araújo, 2936, INPA, Petropólis, Aloj 09, Projeto LBA - ManausFlux, CEP:69083-000, Tel: 00 55 92 643 3255
E-mail: carioca@inpa.gov.br

Studies by *Grace et al.* (1996) and *Malhi et al.* (1998) show high rates of net CO_2 uptake by Amazon rain forest, suggesting that such forests may represent the "missing" carbon sink that is required to close the Earth's carbon budget. In contrast, atmospheric inversion models and analyses of satellite images suggest that important terrestrial sinks are located in the northern hemisphere (Schulze & Schimel, 2001). Therefore, much uncertainty exists about the real location of the missing carbon sink. *Araújo et al.* (2002) and *Aubinet et al.* (2001) revealed variation in carbon uptake rates, distributed over different areas in the same ecosystem. Such differences could be related to the topography, associated with variation in soil water content and the depth to which water is available to plants, leading to contrasting edaphic conditions for the functioning of the vegetation (Chauvel et al., 1987 e Hodnett et al., 1997). Fluxes of CO_2, water and energy have been measured by the eddy correlation technique for several years near Manaus. An investigation of the location of sources responsible for the measured fluxes was performed using footprint models in the context of such landscape. Analysis of fetch related to availability of energy has shown that when the wind blows from the northwest and southwest quadrants less radiation is available than in the others, with consequently lower net carbon uptake rates. Also, the respiration rates are higher suggesting that the CO_2 respired from the valleys or drained from the plateaus is being captured by the eddy covariance system.