

11) POSTER

THE USE OF A FOOTPRINT MODEL TO ANALISE THE INFLUENCE OF THE SURFACE'S HETEROGENEITY UPON OBSERVED FLUX

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ABSTRACT

Around the globe punctual measurements of momentum, energy, water vapor, and CO₂ fluxes made by micrometeorological towers have become very common. Since the quantities measured are punctual, they are influenced by the air advection, atmospheric instability and the distribution of their sources and sinks that are related to the surface characteristics as relief, and vegetal cover, which depends on the wind direction. It was used for this study a footprint model parameterized with three-year flux measurements (1999, 2000 and 2001) made at the Biological Reserve of Jaru, in Ji-Parana, Rondonia, on the scope of the Brazil / European Union Tower Consortium of the Large Scale Biosphere Atmosphere in Amazonia (LBA) experiment. The footprint model shows that, for stable conditions, around 78% of the measured fluxes are mostly related to an area around the tower with up to 10 km radius, but with a maximum contribution from about 600 m. For unstable conditions, more than 95 % of measurements are related to the same area, and the maximum contribution radius is around 300 m. The variation in flow direction shows little influence on CO₂ fluxes and net radiation. However, the intensity of sensible and latent heat fluxes vary with wind direction, possibly associated with the presence of deforestation areas at the neighborhood of the site and of Machado River, that is less than 1 km west from the tower.