LBA

Experimento de Grande Escala da Biosfera-Atmosfera na Amazônia

2ª Conferência Científica Internacional do LBA

07 a 10 de Julho de 2002

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3) Drought in an E. Amazonian rain forest: effects of the exclusion of rainfall from soil on leaf gas exchange.

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Rainfall was experimentally excluded from 1 ha of E. Amazonian forest, at Caxiuana National Forest, Para using transparent plastic panels placed 1.5-2.5 m above the ground. Measurements were made of leaf gas exchange before and after installation of the rainfall exclusion infrastructure. Measurements of stomatal conductance and the maximum rate of carboxylation and electron transport were measured on leaves at different levels throughout the vertical profile of the canopy. Comparisons were made between adjacent control and treatment plots (1 ha) and with data obtained from a third plot 2km away, where weather and ecosystem flux measurements were also made. The exclusion of rainfall resulted in a reduction in soil water volume content by more than 30% in comparison to the control measurements. Before the experimental exclusion of rainfall no statistical differences could be discerned between leaves in the canopy profile at the different sites. The effect of the experimental reduction in soil moisture on canopy physiology is discussed.