

17) ORAL

A forest clearing experiment conducted in the Amazonian arc of deforestation

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Abstract

This paper describes the characteristics of fire spread around a forest clearing site located in the Amazonian arc of deforestation. The experiment was carried out in 2001 at the Caiabi Farm, near the town of Alta Floresta, state of Mato Grosso, Brazil, as part of a set of tests that have been performed in the same area since 1997. So far, six test plots were burned. The main goal in the experiments of the first five plots was to determine biomass fire consumption and carbon release rates under different conditions of size of burned area and period of curing. The results regarding these tests were already published (Carvalho et al., 2001). Special care had to be taken to prevent fire from escaping the clearing site into the adjacent forest in all five experiments. This procedure had not been necessary in previous experiments conducted by the group in Manaus, state of Amazonas (Carvalho et al., 1995, 1998), and in Tomé Açu, state of Pará (Araújo et al., 1999). Therefore, during 2001 a site was prepared and burned to investigate under-story fire generated by the forest clearing process, and results of this work are presented here. The experiments reported by Carvalho et al. (2001) were conducted in five plots, denominated A, B, C, D, and E. Biomass fire consumption and carbon release rates were determined in the central 1-hectare area of each. In 2001, plot F was felled in May and burned on August 20.