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**Stream water chemistry assessment in agriculture catchments in Eastern Amazonia**

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In order to evaluate land use effects on land-water interactions, we assessed changes in stream water chemistry along three streams from their headwaters in remnant mature forests, through pastures, secondary forests, and large fertilized fields of soybean, rice and corn. The studied catchments, situated in the Paragominas region, in the eastern Amazonia, include the 13,698 ha Igarapé Cinquenta e Quatro (IG54) with five sampling stations and crop fields accounting for 22.3% of the area, the 16,143 ha Igarapé do Sete (IG7) with seven stations and 3.9% of crop field areas, and the 3,246 ha Igarapé Pajeú (IGP) with three stations and 4.5% of crop field areas. A nearby pristine watershed, Capitão Poço (CP) was included as a reference of undisturbed mature forest. Field campaigns were conducted monthly from April 2003 to October 2005. The stream water chemistry in the headwaters of IG7 and IGP watersheds was similar to CP, indicating relatively undisturbed headwater conditions, whereas the headwaters of IG54 stream were more disturbed. This was most evident for turbidity, dissolved oxygen, pH, alkalinity, potassium, calcium, sulphate, and dissolved organic carbon. The predominant ions in all watersheds were sodium and chloride. In IG7 and IGP watersheds, pH, and alkalinity increased, and nitrate decreased in the downstream direction, where the percentage of forest cover decreased as the percentage of pasture increased. In IG54, where large, intensively managed agricultural fields have expanded rapidly, we measured increases in nitrate and ammonium and a reduction in dissolved oxygen in sampling stations located where riparian forest was absent and crop fields were close to the stream channel. We conclude that land use change is affecting water quality and that the importance of riparian zone processes and forest cover should be considered as agricultural expansion is managed in this region.

**Sessão:** Biogeoquímica - A biogeoquímica das interações entre terra e água: integrando pequenos reservatórios a grande bacia.

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