B11G-0113 Hydrogeochemistry of the Overland Flow in Soil at Agroecosystems in Eastern Amazon

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In the watershed of the Timboteua and Buiuna streams, northeast of Pará state, Amazon, it was characterized the overland flow dissolved material by some hydrogeochemical variables: electrical conductivity (EC), pH, chloride (Cl^-), nitrate (NO_3^-), phosphate (PO_4^{3-}), and sulfate (SO_4^{2-}). In two small holder properties three overland flow experimental plots ($1m^2$) were placed in each of the six evaluated ecosystems under similar biophysical conditions, totaling 18 plots. There was also installed three rainwater collectors and two rain gauges in a nearby area. In the rainy season were collected 234 samples of rainwater and overland flow. The evaluation of the measured variables promote the hydrogeochemical characterization of the overland flow at soil under chop-and-mulch and slash-and-burn practices in the different ecosystems found in the familiar agriculture of this watershed, in which it was identified some distinct hydrogeochemical characteristics of the overland flow. The lowest losses of NO_3^- (variation range = 0.07 to 2.57 µM) was found in agroecosystem - chop-and-mulch, this nutrient obtained higher values in agroecosystem - slash-and-burn (RQ). In agroecosystem (RQ) initially, there was a high value of PO_4^{3-} (8.87 µM); EC (121 µS cm^{-1}) and a subsequent sharp decline. Secondary successional forest (CP) of 20 years presented in overland flow pH 4.8 and EC 25 µS cm^{-1} (average 6 months), low loss of NO_3^- (0.2 µM) and PO_4^{3-} (0.05 µM), and large range of variation of SO_4^{2-} (0.7 to 21.5 µM). While Cl^- and SO_4^{2-} overland flow concentrations were affect by the rainfall variation, the increase of NO_3^- and PO_4^{3-} concentrations were more related to the ecosystem management, with the first element responding to the presence of nitrogen-fixing species and the second responding to the burning practices. In summary: This study was efficient to characterize the hydrogeochemical of the overland flow and its relation to the altered ecosystems by Amazonian family farming.

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