ROLE OF FLOODPLAINS IN THE ORGANIC MATTER FATE, TRANSPORT, AND SINK: CASE OF THE AMAZON FLOODPLAINS


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Floodplains play an important role in Amazon River hydrology, sediment dynamics, carbon cycle and ecology because they modify river discharges and chemical composition. The flooded areas along the Amazon are important sources of greenhouse gases to the atmosphere and seem to influence the carbon cycle.

Organic matter transported in the Amazon River has mainly a terrestrial and refractory origin. Intensive degradation processes in soils are the principal factor responsible for the relatively refractory character that composes most of the organic carbon flux in the Amazon. It is known that the organic matter transport in the Amazon River, downstream of Manaus, does not present a conservative behaviour, attesting the occurrence of different physical-chemical processes, and lateral exchanges with floodplains. We have estimated the input of organic carbon flux in the Amazon River by the different tributaries and the output flux of organic carbon to the Atlantic Ocean, and we observed a gain in organic carbon, which clearly shows that other important sources of organic carbon exist. We attribute these inputs to floodplain systems. Floodplains seem to be responsible for the presence of a small pool of labile organic matter in Amazon River. Organic carbon is also lost in Amazon floodplain by permanent burial in floodplain lakes. All these data point out the complex importance of Amazonian floodplains for organic carbon cycle in the Amazon Basin.