AGU FALL MEETING
San Francisco | 14–18 December 2015

H43B-1479: Influence of land use on the hydrobiogeochemistry of the Camanducaia and Jaguari watersheds, Brazil

ABSTRACT

Thursday, 17 December 2015
13:40 - 18:00
Moscone South - Poster Hall

Two medium-sized watersheds of the Piracicaba river basin, the Camanducaia and Jaguari sub-basins, are being studied to evaluate the effects of land use change on the basin's hydrobiogeochemistry. The Jaguari basin is an important provider the Cantareira reservoir system that supplies around six million inhabitants of the Metropolitan Region of São Paulo, Brazil. A one-year hydrological study began on January 2015 to monitor some water quality parameters such as pH, electric conductivity (EC), dissolved oxygen (DO), dissolved organic and inorganic carbon (DOC and DIC), nitrate (NO_3^-), ammonium (NH_4^+) and total nitrogen (TN). For that purpose we established 19 sampling stations along the Camanducaia (8 stations) and Jaguari (11 stations) river channels; two stations at their main tributaries Mosquito and Camanducaia Mineiro, respectively; and another two stations at small streams in headwater areas of the Jaguari and Camanducaia watersheds. Preliminary results show that DOC concentrations are correlated DIC ($r=0.81$ at Jaguari; $r=0.70$ at Camanducaia; $p<0.05$). We observe that DOC tends to increase by multiples of 2.5 and 3.5 times from forested headwater areas to the most downstream stations of Jaguari and Camanducaia, respectively. Regarding DIC these multiples are 4.4 and 1.9 times greater. The four most downstream stations at Jaguari show urban area effects with higher DIC monthly values ranging from 28.7 to 33 mg L^{-1}. Also DIC correlated with EC values (means around 160 µS) at two of these stations. We expect that at the end of this monitoring year results will show stronger relations between hydrobiogeochemical parameters and land use change.

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