Major and trace element fractionation and transfer in humid tropical urban hydro-ecosystems: Mefou watershed (Yaoundé, Cameroon)

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Abstract

The present research aims to evaluate the impacts of anthropogenic activities on water ressources of tropical urban hydro-ecosystems, and improve our understanding of geochemichal process and element transfer in these environments. The study is carried in Mefou watershed (840 Km^2, Central Africa) a tributary of great Nyong watershed. The dissolved concentrations of major and trace elements, organic carbon, and particulate concentration of metals were measured in Mefou watershed's groundwaters and streams till the Nyong river. The results show interactions between waters, bedrocks, soil, relief and demographic pressure which in turn modify the hydrogeochemical caracteristics of the hydro-ecosystem. There is a poor mineralization of springs and streams not much influenced by anthropogenic activities. Human activities lead to organic and metallic contamination of waters and influence the dynamics process. The pollution trends to diminish gradually from Mfoundi (Mefou river tributary) to Mefou and Nyong rivers. These natural auto regulatory processes is due to dilution, sedimentation, degradation and adsorption of materials in the low relief zones and at the river bed which are rich in macrophytes.