

## Spatial Variation of Trace Elements in Suspended Sediments from Urban River

**Authors :** Daniel Macedo Neto, Sandro Froehner, Juan Sanez

**Abstract :** Suspended sediments (SS) are an environmental constituent able to represent the effects of land use changes on watersheds. One important consideration of land use change is its implication on trace element loading. Water bodies have the capacity to retain trace elements. Spatial variation in trace elements concentrations can be associated with land occupation and sources of pollution. In this work, the spatial variation of trace elements in suspended sediments from an urban river was assessed. Time-integrated fluvial suspended sediment samples were installed in three different sites of Barigui River. The suspended solids were collected every 30 days, from May 2015 to August 2015 (total samples 12). Site P1 covers 44 km<sup>2</sup> drainage area and has low land occupation, whilst P2 cover an area of 87 km<sup>2</sup> and it is totally urban as P3, which area is higher than 130 km<sup>2</sup>. Trace elements (As, Cd, Cr, P, Pb and Zn) were analysed by ICP-ES. All elements analyzed showed a similar pattern, i.e., the concentration raise with the urbanization, exception for As (P1=7.75; P2=5.75; P3=5.60mg/kg). There was increase in concentration for Cd (P1=0.75; P2=0.78; P3=1.45mg/kg), Cr (P1=59.50; P2=101.75; P3=102.00 mg/kg), Zn (P1=142.25; P2=152.50; P3=223.00mg/kg), P (P1=937.50; P2=1,545.00; P3=2,355.00 mg/kg) and for Pb (P1=31.25; P2=32.75; P3=39.17±2.56 mg/kg). The variation in concentrations were as follow -27.74% (As), +93.33% (Cd), +71.43% (Cr), +151.20% (P), +25.33% (Pb) e +56.77% (Zn). Cd, Cr, P, Pb and Zn presented a clear trend of increasing the concentration from upstream to downstream. Such variation is more notorious for P, Cd and Cr, possibly due the urbanization.

**Keywords :** trace elements, erosion, urbanization, suspended sediments

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