



2015 Aquatic Sciences Meeting

Aquatic Sciences: Global And Regional Perspectives — North Meets South

22-27 February 2015 — Granada, Spain

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ABSTRACT

INORGANIC AND ORGANIC CARBON SPATIAL VARIABILITY IN THE CONGO RIVER DURING HIGH WATERS (DECEMBER 2013) AND LOW WATERS (JUNE 2014)

Tropical rivers are important components of the global carbon cycle, as they account for 60% of global freshwater discharge to the oceans. In contrast with south American rivers, very little information is available for African rivers on their carbon flows and stocks, in particular the Congo river, the second largest river in the World in terms of freshwater discharge (1457 km³ yr⁻¹) and in terms of drainage basin (3.75 10⁶ km²) located the second largest tropical forest in the World. Here, we report a data-set of continuous (every minute) records of the partial pressure of CO₂ (pCO₂) (total of 10,000 records), and discrete samples of particulate (POC) and dissolved (DOC) organic carbon, total alkalinity (TA), methane (CH₄), and nitrous oxide (N₂O) (total of 75 samples) in the mainstem and major tributaries of the Congo river, along the 1700 km stretch from Kisangani to Kinshasa (total river length = 4374 km), during the high water period (December 2013). The pCO₂ dynamic range was high ranging from minimum values of 2000 ppm in white waters tributaries (higher turbidity, conductivity, TA, N₂O and O₂, lower CH₄, DOC and POC), up to maximal values of 18,000 ppm in blackwaters tributaries (lower turbidity, conductivity, TA, N₂O and O₂, higher CH₄, DOC and POC). In the mainstem, a distinct horizontal

(longitudinal) pattern was observed with pCO₂ increasing, and conductivity and turbidity decreasing downstream. The comparison of high and low water periods shows a general increase of conductivity, pH and O₂ and decrease of pCO₂ during low waters compared to high waters.

<http://www.co2.ulg.ac.be/>

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DETAILS

Oral presentation

Session #:049

Date: 2/24/2015

Time: 10:30

Location: Seminario 6-7 (Floor 1)

Presentation is given by student: No



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