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Paper No. 124-2
Presentation Time: 9:00 AM-6:30 PM

CENTRAL CUBAN RIVER WATERS INDICATE HIGH RATES OF CHEMICAL WEATHERING WHEREAS LOW NUTRIENT LOADS REFLECT SUSTAINABLE AGRICULTURAL PRACTICES

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Cuba, the largest and most populous Caribbean Island, is underlain by diverse rock types. Its landscape has been affected by agriculture for centuries; yet, the biogeochemistry of Cuban river water is not well characterized. data are critical for sustainable development and for understanding rates of landscape change over time.
To address this data gap, in August 2018, a joint Cuban-American team collected water samples from 25 rivers in central Cuba where upstream land use varies widely from mostly forested to agricultural. Conductivity was h (130 to 1380 mS/cm) and well correlated with dissolved load (117 to 785 mg/L), oxygen saturation varied from 59 to 155%, and pH was circumneutral (6.8-8.5). *E. coli* bacteria were present in all samples. Total dissolved nitr was low (<0.1-1.6 mg/L) and mainly present as nitrate. Orthophosphate levels were below 0.6 mg/L and chloride ranged from 5-180 mg/L. Concentrations of dissolved organic (1.5-10 mg/L) and inorganic carbon (15-93 mg/L varied widely. All base cations, anions, and trace metals were below Cuban and American health standards for drinking water.
Cuban river waters carry high dissolved loads. Summed cation, anion, and silica concentrations, considered with annual discharge estimates, indicate chemical denudation rates of 42-302 T/(sq km*yr). Such high rates of so export suggest flow paths through fresh, relatively soluble rock. Water in many central Cuban rivers has high levels of organic carbon and *E. coli* bacteria which source molecular tracing suggests are from farm animals (ungulates). Concentrations of nitrogen and phosphate in Cuban river water are lower than in other areas where intensive agriculture is practiced, such as the Mississippi River, and similar to or slightly higher than less agricultural Caribbean islands. Low nutrient loads in river waters likely reflect the Cuban shift to sustainable agricultural practices after 1990 and resulting low application rates of inorganic fertilizers.

Session No. 124--Booth# 297
T15. Soil Forming Processes and Quaternary Landscape History (Posters)
Monday, 23 September 2019: 9:00 AM-6:30 PM

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