

Carbon Transport in Small Mountainous Rivers in Southwest Haiti

Julia Paine¹, Michele Markowitz², Wade McGillis³, Diana Hsueh³

¹University of Miami, Coral Gables, FL ²City College of San Francisco, San Francisco, CA

³Columbia University, New York, NY

Since the earthquake hit Haiti in 2010, hydroclimatology measurements have been performed in southwestern Haiti. This area is coated with small mountainous rivers (SMRs) and has been susceptible to significant deforestation. Both anthropogenic activities and natural forces have altered the abundances and transformations of carbon as it is transported from land to the coastal ocean. This investigation of carbon transport and air-sea gas exchange in Haiti will address the current deficiency of scientific knowledge regarding biogeochemical cycles and tropical SMR systems. Vertical and horizontal flux of dissolved inorganic carbon is calculated primarily using carbon system data, including $p\text{CO}_2$ and DIC, and salinity discharge curves. SF_6 , an inert gas, was mixed into a solution of salt and rhodamine to find air-sea gas exchange of these SMRs. Integration of both vertical and horizontal fluxes over a year aids in the identification of the movement of inorganic carbon be it weathering, respiration, or photosynthesis. Research will be continued throughout the season, but only dry season data is represented here, thus discharge values are expected to increase. As rivers fork and bifurcate, it is difficult to address all branches of southwestern Haiti's rivers. Thus, concentration lies on both the largest rivers and those most prudent to current hydroelectric power prospects.