UNMIXING THE WATER AND SEDIMENTS FROM THE AMAZON RIVER

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The Amazon River is the largest fluvial system in the world, delivering huge amounts of sediments and water to the Atlantic Ocean. Considering the continental scale of the Amazon fluvial system, an accurate distinction of water and sediment contributions from its major tributaries is necessary to understand how the Amazon River responds to climate change. In this context, the Solimões, Negro, Madeira, Tapajós and Xingu rivers were sampled to characterize their water and sediment fluxes. Water mass signatures were obtained using O and H isotopes. Sediment provenance (sand and mud) was characterized using major elements, radionuclides and luminescence measurements. Our data suggest significant changes in water isotopes between the dry and wet seasons. Moreover, there is a strong decoupling between water and sediments supplied to the Amazon River, with the Solimões and Madeira rivers dominating the sediment supply. Despite a significant contribution to the Amazon River water flux, the Negro, Tapajós and Xingu rivers have low contribution to the Amazon River sediment load. An integrated approach to quantify the relative contribution of each tributary to the Amazon River water and sediment supply will be presented.