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SEASONAL AND SPATIAL VARIATIONS OF SILICON ISOTOPES IN LARGE TROPICAL RIVERS

Here we present the first large dataset of dissolved silicon isotopes signatures ($\delta^{30}Si$) in different tropical rivers, including the Amazon and the Congo, the two largest silicon suppliers to the ocean. A one-year-long monthly series is presented for the Congo River, upstream from the Kinshasa/Brazzaville urban zone. Spatial and temporal variations in the Amazon River and its main tributaries have been studied. Both Congo and Amazon convey similar mean $\delta^{30}Si$ signatures (close to +0.8‰) to the ocean, in the range of previously published values. The Congo River exhibits limited seasonal variations, with the exception of some large $\delta^{30}Si$ variations that seem related to the presence of high biogenic silicon content in the water column. This could be due to diatom activities at the level of the Pool Malebo, a lake-like widening in the lower reaches of the Congo River upstream of Brazzaville. In contrast, other rivers such as the Mekong (Vietnam) and the Tana (Kenya) can exhibit much higher $\delta^{30}Si$ values of up to +2‰. These differences may be linked to different parameters including higher weathering rate and human impact.