

Biogeochemical response of New Caledonia lagoon sediments to tropical events: a numerical modeling approach

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New Caledonia main island is made of ultramafic rocks largely covered by metal-rich laterites. Mining activity enhances erosion and detrital deposit to the lagoon coastline. This anthropogenic process is itself enhanced by tropical cyclones. This numerical work explores long term early diagenesis processes, especially the formation of authigenic minerals such iron sulfides and "green clays" in shallow sediment. As well, the short term biogeochemical response is investigated regarding different scenarios: a massive sediment deposit due to river flooding and sediment resuspension events. Modeling outputs are compared to results obtained in 2016 and 2018 from campaigns at sea in the Northwest of New Caledonia.