



Carbon sequestration potential of coastal wetland soils of Veracruz, Mexico

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Tropical coastal wetlands, including rainforests and mangrove ecosystems play an increasingly important ecological and economic role in the tropical coastal area of the State of Veracruz /Mexico. However, soil processes in these environments, especially C-turnover rates are largely unknown until today. Therefore, we investigated CO₂ and CH₄ emissions together with gains and losses of organic C in the soils of two different coastal ecosystems in the “Natural Protected Area Cienaga del Fuerte (NPACF)” near Tecolutla, in the State of Veracruz. The research areas were an artificially introduced grassland (IG) and a wetland rainforest (WRF). The gas emissions from the soil surfaces were measured by a static chamber array, the soil organic C was analysed in soil profiles distributed in the two areas, humic substances were characterized and C budget was calculated. The soils in both areas acted as carbon sinks, but the soils of the WRF sequestered more C than those of the IG, which showed a higher gas emission rate and produced more dissolved organic carbon. The gas emission measurements during the dry and the rainy seasons allowed for estimating the possible influence of global warming on gas fluxes from the soils of the two different ecological systems, which show in the WRF a quite complex spatial emission pattern during the rainy season in contrast to a more continuous emission pattern in the IG plots